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OF THE

NATIONAL ACADEMY OF SCIENCES.

VOLUME I.

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NATIONAL ACADEMY OF SCIENCES.

VOLUME I.

CONTENTS.

REDUCTION

OF THE

OBSERVATIONS OF FIXED STARS

MADE

BY JOSEPH LEPAUTE D'AGELET, AT PARIS, IN 1783—1785,

WITH A

CATALOGUE OF THE CORRESPONDING MEAN PLACES, REFERRED TO THE EQUINOX OF 1800.0,

BY

BENJAMIN APTHORP GOULD.

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§ 1. PRELIMINARY.

The *Histoire Céleste Française* of LALANDE, published in 1801, contains, on pages 481–566, a copy of the rough notes or day-book of observations of fixed stars made by the astronomer D'AGELET at the Military School of Paris, between the 18th February and the 25th September, 1783. LALANDE had previously published, in the Memoirs[1] of the French Academy of Sciences for 1789, a series of similar observations made by D'AGELET between March 22 and October 2, 1784; and in the Memoirs[2] for 1790 another series still, comprising observations made between October 6, 1784, and April 29, 1785; and he states[3] that when D'AGELET left Paris in June, 1785, with the unfortunate expedition of LA PÉROUSE, he deposited with him the original manuscripts on bidding farewell, obtaining at the same time a promise that they should be published in case their author should not return.

In various places[4] LALANDE farther informs us that a large number of observations of fixed stars had been made between 1778 and 1780, and that D'AGELET had begun to observe small stars, previously too much neglected by astronomers, in the month of September, 1782. But although the last page of the *Histoire Céleste* contains a promise of a subsequent publication of observations made prior to those contained in that volume, it is stated on page 479 that 1783, February 18, the earliest date there given, was the first day of regular observations upon small stars. It seems, therefore, beyond reasonable doubt that the three series, referred to, contain all the observations of small stars made by D'AGELET, and this is rendered more certain by LALANDE's declaration[5] that he had fulfilled his promise of publishing these observations.

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[1] Mém. de l'Acad., 1789, pp. 641—662.
[2] Mém. de l'Acad., 1790, pp. 633—658.
[3] Conn. d. Temps, An. VI, p. 446. Mém. de l'Acad., 1784, p. 74.
[4] Conn. d. Temps, An. VI, pp. 442–3.
[5] Histoire Céleste, p. 479.

Although the zone-observations of LALANDE have been reduced and rendered conveniently accessible to astronomers—thanks to the suggestions of BESSEL, the tables of HANSEN and NISSEN, the liberal grants of the British Association, the industrious zeal of BAILY, and the thorough accuracy of FEDORENKO—still the observations of D'AGELET, though made at a date anterior to any stellar observations of the modern school, save those of the incomparable BRADLEY, have remained in their crude and almost useless form until the present day. I know of no astronomer, excepting ARGELANDER, who seems to have made use of them for more than three-quarters of a century, and it was by this eminent astronomer that my attention was first directed, more than twelve years ago, to the relatively high value of these ancient observations.

An examination of the originals soon convinced me that, if by any process the instrumental errors could be eliminated, we should have in these observations the best existing means of determining proper motions for almost all the stars not observed by BRADLEY. Indeed, ARGELANDER, in his *Positiones Mediæ,* has in several instances availed himself of D'AGELET'S observations for this purpose, doubtless by some differential process; for the present discussion of the original records has shown the determination of the instrumental corrections to be a work of such difficulty, that I can hardly imagine any other mode of procedure for isolated stars.

To the peculiar irregularities of these corrections, arising chiefly from a distortion of the limb of the quadrant, I attribute the fact that these valuable observations have so long remained in the crude state of ore, without any known attempts to extract the precious metal which they contain. And, impelled by a strong desire to contribute to the Academy at its first scientific session some memoir in the domain of practical astronomy, although destitute of any access to astronomical instruments, I have thought that this could in no way be better accomplished than by a discussion of the observations of D'AGELET, and the construction from them of a catalogue; hoping that the work of rendering ancient observations available might not prove much less serviceable than the attainment of new ones.

Those portions of the computations which I have not made in person have been made at my expense, and I desire to express my thanks to my pupils and assistants, Messrs. JOHN N. STOCKWELL, ERVING WINSLOW, WILLIAM H. PALMER, S. C. CHANDLER, jr., and S. S. EASTWOOD, for their valuable aid. Mr. WINSLOW has taken part in all the computations from the beginning.

The catalogue contains 6497 observations of 2907 stars situated between the parallels of 50° north and 35½° south declination.

§ 2. HISTORICAL.

The greater part of what we know of the astronomer to whom these observations are due we derive from notices given by LALANDE, and any attempt at a scientific biography of D'AGELET can result in little more than a digest of what we there find, with such additional facts as may be discovered by following up the clues there given. In spite of this circumstance it seems desirable to give a summary of what is known concerning this zealous and devoted follower of science.

JOSEPH LEPAUTE D'AGELET was born at *Thonne la Long*, near *Montmêdi*, near the frontier of Luxemburg, and in the present department of the Meuse, on the 25th of November, 1751, the son of PIERRE LEPAUTE and MARTINE DE MOUZON, and the nephew of the two LEPAUTES so eminent as makers of chronometers and astronomical clocks. Madame LEPAUTE, whose astronomical computations and services as assistant to LALANDE are so well known, was the wife of the elder of these brothers, and invited her nephew, the young D'AGELET, soon after the completion of his sixteenth year, to come to Paris as the pupil of LALANDE, who was then at the observatory of the *Collēge Mazarin.* Here he remained for five years, winning the respect, confidence, and attachment of LALANDE by his talent, fidelity, and amiable character, until in March, 1773, he was appointed astronomer to the southern naval expedition of KERGUELEN. On this expedition he made extensive observations of longitudes, tides, magnetic variations, and collected many valuable specimens of natural history, but was disappointed in the want of opportunity for further astronomical and geographical determinations. In August, 1774, he returned to Paris and resumed his astronomical pursuits.

In 1777 D'AGELET was appointed Professor of Mathematics at the *École Militaire.* His predecessor, JEAURAT, had, in 1768, prevailed upon the Duc de CHOISEUL, Minister of War, to establish an Observatory at this institution; and a large wall had been built, adapted for the possible reception of a mural quadrant. LALANDE states[1] that he exerted himself for a long time in vain, to obtain an appropriation for the purchase of the desired instrument. "Je disais ce que la loi dit de la pierre d'attente, *perpetuo clamans*, et je ne m'y suis pas trompé. Apres avoir fait des efforts inutiles auprès des ministres les plus célèbres et les plus savants, MALESHERBES et TURGOT, pour avoir son mural, je l'obtins en 1774 de BERGERET, receveur-general des finances. On voit dans l'Evangile que le publicains fit honte au pharisien." The instrument was ordered of BIRD, in London, and seems to have been essentially a copy of the one which he had made for BRADLEY a quarter of a century before. The instrument was mounted 1778, August 23, and D'AGELET began at once a series of regular observations, both planetary and stellar. In 1780 he had already 1,600 observations of planets, and a much larger number of fixed stars, of which, at LALANDE's instance, he proposed preparing an extensive catalogue. In April, 1782, he received the second nomination to the Academy of Sciences, and in January, 1785, was unanimously elected a member. Observations of planets made by him with the quadrant may be found in the Memoirs of the Academy for 1784, 1785, 1786. The fourth volume of LALANDE's Astronomy, published in 1781, and the eighth volume of his *Ephemerides*, published in 1783, contain a large number; and LALANDE alleges[2] that no one in Europe was then doing so much for astronomy as D'AGELET.

In 1782 he commenced observing faint stars, although, as before mentioned, his earliest published observations of this sort date from February, 1783.

When, in 1785, King LOUIS XVI formed the plan of a French scientific expedition round the world, analogous to those of COOK, LA PÉROUSE was placed in command, and no pains were spared to obtain the best men that could be found. D'AGELET was the youngest astrono-

[1] Conn. des Temps, An VI, 441; Hist. Cél., p. ii, Mém. de l'Acad., 1789, p. 187. [2] Conn. des Temps, An VI, 442.

mer of the Academy; he had experience as a navigator, and was naturally selected as astronomer to the expedition. He accepted the position with great reluctance, as his naval experience had not left agreeable recollections; he desired to continue the observations for his projected catalogue of stars; and he was about to be married. Still, he listened to the solicitations of the Minister and of the Academy, and on the 23d of June, 1785, eight weeks after the last date of his published observations, he left Paris, never to return.

The history of LA PÉROUSE's expedition is well known. With the two ships, *Astrolabe* and *Boussole*, he visited Madeira and Brazil, passed around Cape Horn to Chili, touched at the Sandwich Islands, coasted along the west coast of America, and remained for a time at Monterey, in California. Leaving this port in September, 1786, he sailed for Manila, and thence in the following spring passed to the northeastern coast of Asia, exploring the shores of Japan and Kamtchatka. He left Petropaulowsk in September, 1787, and after visiting the Navigators' and Friendly Islands, reached Botany Bay in February, 1788. From this point came the last tidings of the expedition. LA PÉROUSE next contemplated an exploration of the Polynesian groups; but all traces of the explorers vanished here. Unwearying searches proved fruitless, and it was not until after the lapse of nearly forty years that their fate was discovered. The two ships were wrecked in a storm upon a coral reef on the southwesterly coast of the island Malicollo, one of the New Hebrides islands; and all on board perished, together with all their scientific observations and collections, except the few journals which had been previously sent home from Kamtchatka, and which possessed high geographical value.

D'AGELET had been interdicted by his commander from sending home any of his observations, and all were thus lost forever, excepting such geographical determinations as had been transmitted by LA PÉROUSE himself. We know that he established an astronomical observatory at every port at which the vessel stopped; that he made observations at each upon the variation and dip of the needle, the tides, and the pendulum. The excellence of his longitude determinations is frequently commented upon by LA PÉROUSE, inasmuch as his results, by lunar distances and by chronometers, agreed within less than the probable errors of the lunar tables. From Kamtchatka he wrote that since leaving Manila they had explored and surveyed with great exactness more than six hundred marine leagues of unknown coast, fixing all the geographical positions with precision; and that he and his assistant, D'ARBAUD, had become so accustomed to observations of lunar distances that they used them for verifying their chronometers without uncertainty. His last letter was dated in March, 1788. A little rocky island in the Japan sea still bears his name, given it by LA PÉROUSE, and transmits, through our maps and charts, the memory of this gifted and deserving scientist, whose valuable observations have passed almost unheeded for more than eighty years. Those of LEFRANÇAIS DE LALANDE and BURKHARDT, subsequently made for LALANDE with the same instrument and certainly not greater precision, have proved so valuable, that it seems more than strange that D'AGELET's results in initiation of the work which they continued should have remained almost unregarded till now. From Monterey he wrote in 1786 that he found the savages both

virtuous and humane, and that his experience in such regions, least frequented and nearest to a primitive condition, indicated that the human race is naturally kindly. It probably did not occur to him that the first publication of a catalogue formed from his observations would be due to the representatives of that region, when its coast should be white with canvas and its cliffs noisy with the echo of hammers and the hum of commerce.

In J. BERNOUILLI'S *Nouvelles Litteraires de divers Pays, Cahier I, p.* 35, may be found an article by D'AGELET in commemoration of M. DE MERSAIS, a young astronomer who accompanied him in the Kerguelen expedition.

§ 3. INSTRUMENT.

The instrument which was used by D'AGELET in these observations was the same which was subsequently employed by LALANDE in his zones, and to which we probably owe observations of a larger number of stars than to any other instrument known to astronomical history previous to BESSEL'S zone-observations. Yet its peculiarities seem to have been little studied, owing to the rough methods of reduction employed by LALANDE himself, and to the circumstance that all the observations reduced by BAILY and FEDORENKO were made in zones, each of which was differentially treated, independently of the rest.

It was a mural quadrant, constructed by BIRD, in 1775–8, having a radius of 7½ French feet, and an aperture of 32 lines.[1] In dimensions and construction it seems to have been similar to that of LEMONNIER, and apparently a copy of the celebrated quadrant of BRADLEY. LALANDE, on page viii of the *Histoire Céleste*, says it has been described in his astronomy,[2] and better still in one of the Cahiers des Arts of the Academy, published in 1774, by LEMONNIER, under the title, "*Description des Principaux Instruments de l'Astronomie.*" Since the paper of LEMONNIER was actually published before the instrument of D'AGELET and LALANDE was made,[3] it may reasonably be inferred that the latter was intended as an exact duplicate of that one to which the description originally referred.

The limb of the quadrant was furnished with two independent graduations, the one being into 90 degrees, and each degree into 12 parts of 5′ each ; the other being into 96 divisions, and each of these into 16 subdivisions, each of which corresponded, therefore, to an arc of

[1] Mém. de l'Acad. 1789–191.

[2] 3d edit. II, 588, 684.

[3] In a note to the first page of the preface of the British Association's catalogue of LALANDE'S stars, an apparent contradiction is alluded to, as follows: "At page ix, LALANDE, after mentioning an improved mode of supporting the telescope, says: 'J'ai oui dire autrefois que l'arc de ce quart de cercle avait été rompu chez LEMONNIER, mais il a été parfaitement rétabli.' Hence one would suppose that the quadrant of the *École Militaire* was identical with LEMONNIER'S. This, however, is distinctly contradicted by LALANDE elsewhere, for, in speaking of the quadrant of the *École Militaire*, he says: 'M. BERGERET, receveur-general, le fit faire à ma sollicitation par BIRD des 1775, et en 1778, le confia à M. D'AGELET,' (*Mém. de l'Acad.* 1789,) while LEMONNIER'S quadrant was made for him in 1753, at the expense of LOUIS XV. It would seem that LEMONNIER'S quadrant was ultimately transferred to the Royal Observatory." The text of LALANDE, although certainly rather ambiguous, does not seem to me to imply such a contradiction. A few lines above he says that MÉCHAIN, having seen a contrivance for relieving the center of the weight of the telescope, had engaged LENOIR to make this addition to the mural of the observatory. Then, after describing the arrangement of the counterpoise, he makes the remark above cited concerning "this quadrant," manifestly referring to the mural quadrant of the Paris observatory, which LEMONNIER had described, and not to the quadrant of the *École Militaire*, used first by D'AGELET and then by LALANDE. To this same note I am indebted for the title of the work in which LEMONNIER'S description is published, but which I have not been able to find.—"*Description des Arts et Metiers, faites ou approuvés par MM. de l'Academie Royale des Sciences Paris*, 1761–89."

3′ 30″.94. The readings were made for each system by means of verniers, which indicated one-twentieth of each interval, or 15″, for the first-named; and one-sixteenth of each interval, or a little more than 13″.18, for the second. Farther precision was attained by estimation in the first system, and by a micrometer indicating seconds of arc in the second. Unlike the zone observations of LALANDE, those of D'AGELET give in most cases the readings according to both systems, the two thus serving to check each other for the detection of large errors, and their mean giving more accurate results than could be afforded by either alone. The reticule was provided with three vertical metallic wires, at intervals of about 23s. of equatorial time.

The defects of the limb of the quadrant, by which it deviated from a plane, have often been referred to, and LALANDE has in various places[1] given different tables for the correction to be applied to times of transit at different altitudes. These tables, however, are not accordant with one another, are quite rough, and by no means correct. Indeed, LALANDE himself[2] says of them, that they are only approximate, and that to determine properly the position of an unknown star, it is necessary to calculate the right-ascensions of one or two known stars, observed nearly in the same parallel.

I have endeavored to elicit the nature and magnitude of the deviation from a vertical plane, and thus to form a general table applicable to all of D'AGELET'S observations. It is greatly to be regretted that we have no notes or memoranda on the subject from D'AGELET himself, inasmuch as the care and assiduity, with which all his observations were evidently made, forbid any doubt that this important point was made a subject of investigation. The nature of the distortion now discovered being such as to excite suspicions that constant errors due to the same irregularities might exist in the readings of zenith distance, the accuracy of the limb in this respect also has been tested, and the suspicions are found to have been correct. The detailed results of these investigations are given in the present memoir.

§ 4. OBSERVATIONS.

The published observations in the *Histoire Céleste* are given in ten columns. The first shows the name of the star when known; the second, the magnitude for perhaps one-half the stars observed; and the third, the approximate right-ascension to minutes of time, for a sufficient number to allow of ready identification. Columns 4, 5, and 6 give the times of transit across three wires, no attempt being made to observe more closely than to quarters of a second—the decimals, .2, .5, and .7 being the only ones which occur. During the period of most of the observations the clock indicated approximate mean time, and even after it was changed to a sidereal rate it was not made to indicate sidereal time, but whenever it was stopped for any reason it was always put in motion again without touching the hands.[3] Columns 7 and 8 contain the two readings of the limb. Column 9, entitled "Reduction,"

[1] Hist. Cél., pp. xi, 480; Mém. de l'Acad., 1785, p. 268—1789, p. 642.
[2] Hist. Cél., p. 480.
[3] Mém. de l'Acad. 1789, p. 643.

gives the translation of the second reading into degrees, minutes, and seconds; and the last, or 10th, column contains remarks or memoranda made at the time, often records of the thermometer and barometer, and occasionally remarks upon the estimated rate of the clock. This column is wanting in the observations published by the Academy, and the few notes and the meteorological observations are to be found in the first column.

The printed records have proved to be seriously affected with errors. Many of these are probably typographical, but the large number of other kinds show that no steps were taken to insure correctness of the copy. The manuscripts deposited by D'AGELET must have been the rough originals, which had apparently received neither revision since the moment of observation nor any addition, unless the column of reduction for the second reading was subsequently formed. I suspect, however, that these values were also written in at the time of observation, on account both of the hasty way in which the translation must have been made, and of the peculiar character of many of the errors. The printed pages were evidently set up from these rough notes, without scrutiny or criticism.

Consequently, instead of a reference to the originals as printed, and of a long catalogue of *Corrigenda*, it has seemed preferable to prepare the observations in some such form as their author would probably have given them, had his life been spared, correcting such errors as have been rendered manifest or probable by the processes of reduction. The principle has nevertheless been rigorously followed of making no change, however slight, in any of the immediate results of observation, without recording it in a marginal note. The correction of errors in computation requires, of course, no such record.

§ 5. THREAD-INTERVALS.

The distances of the three wires from their mean have been determined from 140 observations of transits over all three, taken in two groups of 70 each, the one near the beginning of the series of observations, and the other near the end. The resulting values for the equatorial intervals are:

from the first group,	I = + 22s.903,	II = + 0s.137,	III = — 23s.041
from the second group,	22s.889,	0s.119,	23s.007

their mean, which has been adopted, being

I = + 22s.896, II = + 0s.128, III = — 23s.024

which are not likely to be erroneous by the hundredth part of a second.

From these was constructed the following table, which has been employed in the reductions:

Reductions to the mean of wires.

ζ	I	II	III	ζ	I	II	III
°	s	s	s	°	s	s	s
− 2	+ 36.27	+ 0.21	− 36.48	36	+ 23.48	+ 0.13	− 23.62
− 1	35.52	.20	35.71	37	23.39	.13	23.52
0	34.80	.20	34.99	38	23.31	.13	23.44
+ 1	34.11	.19	34.31	39	23.24	.13	23.37
2	33.47	.19	33.67	40	23.17	.13	23.30
3	32.86	.19	33.06	41	23.11	.14	23.24
4	32.39	.18	32.48	42	23.06	.13	23.19
5	31.75	.18	31.92	43	23.02	.13	23.15
6	31.23	.17	31.40	44	22.98	.13	23.11
7	30.74	.17	30.91	45	22.95	.13	23.08
8	30.27	.17	30.44	46	22.93	.13	23.05
9	29.83	.16	29.99	47	22.92	.13	23.04
10	29.40	.16	29.56	48	22.90	.13	23.03
11	28.99	.16	29.15	49	22.90	.13	23.02
12	28.61	.16	28.77	50	22.90	.13	23.03
13	28.25	.16	28.41	51	22.91	.13	23.04
14	27.90	.15	28.06	52	22.93	.13	23.06
15	27.57	.15	27.72	53	22.96	.13	23.09
16	27.25	.15	27.41	54	22.99	.13	23.12
17	26.95	.15	27.11	55	23.03	.13	23.16
18	26.67	.15	26.82	56	23.08	.13	23.20
19	26.40	.15	26.55	57	23.13	.13	23.25
20	26.14	.15	26.29	58	23.19	.13	23.32
21	25.89	.15	26.04	59	23.26	.13	23.39
22	25.66	.14	25.81	60	23.34	.13	23.47
23	25.45	.14	25.59	61	23.42	.13	23.55
24	25.24	.14	25.37	62	23.51	.13	23.64
25	25.04	.14	25.17	63	23.61	.13	23.74
26	24.85	.14	24.98	64	23.72	.13	23.85
27	24.67	.14	24.81	65	23.84	.13	23.97
28	24.50	.14	24.64	66	23.96	.13	24.10
29	24.34	.14	24.48	67	24.00	.14	24.23
30	24.19	.14	24.33	68	24.24	.14	24.37
31	24.05	.14	24.19	69	24.39	.14	24.53
32	23.92	.13	24.06	70	24.55	.14	24.69
33	23.80	.13	23.94	71	24.72	.14	24.86
34	23.69	.13	23.82	72	24.90	.14	25.04
+ 35	23.58	+ 0.13	− 23.72	73	+ 25.09	+ 0.14	− 25.23

§ 6. REFRACTIONS.

Readings of the thermometer and barometer were unfortunately not made by D'AGELET with desirable regularity or frequency. On many dates they were omitted altogether; very rarely were they made more than once on any night; and the time of the readings was not noted. Indeed, no clue is found to the time of observation of the meteorological instruments other than the place in the printed column at which they appear, and this place seems to have been dictated, in many cases at least, by the convenience or taste of the printer.

Earnest endeavors to obtain a meteorological register for Paris, during the years 1783–5, have proved unsuccessful, and for those dates on which no note of the temperature or of the barometer is recorded I have been reduced to the necessity of adopting arbitrary values for the coefficient of refraction, having regard, of course, to the hour of the night and to the season of the year, and being guided by the tables of mean temperature at Paris.

In computing the refractions, the tables prepared by Prof. COFFIN, and published in the appendix to the Washington observations for 1845, have been employed. These are expanded

from BESSEL'S tables, after reduction to the standard temperature of 100° F., and to the barometric pressure of 29 English inches. For this purpose 0.00885 is added to all the logarithms of the barometric factor, 0.04153 to all those depending on the external thermometer, and 0.00264 to those depending on the temperature of the quicksilver, a corresponding subtraction being made from the logarithm of the mean refraction. Of course, the application of the same quantities to the tables constructed for RÉAUMUR'S scale and the old French barometer enables us to use COFFIN'S value of log R.

Since D'AGELET made no record of the attached thermometer, we must assume that its indications would have been the same as those of the external thermometer, and BESSEL'S tables of log γ and log T [COFFIN'S T and t] may therefore be combined in one. The following tables are formed in this manner, being BESSEL'S log γ + log T + 0.04417 for RÉAUMUR'S scale, and log B + 0.00885 for old French inches and lines :

Thermometric coefficients for Réaumur's scale.

°		°	
— 10	0.07978	+ 7	0.04440
9	.07762	8	.04240
8	.07547	9	.04041
7	.07334	10	.03843
6	.07121	11	.03645
5	.06910	12	.03449
4	.06699	13	.03253
3	.06489	14	.03058
2	.06280	15	.02864
— 1	.06072	16	.02670
0	.05865	17	.02477
+ 1	.05659	18	.02285
2	.05454	19	.02094
3	.05250	20	.01904
4	.05046	21	.01714
5	.04843	22	.01525
6	0.04641	23	0.01337

Barometric coefficients for old French scale.

in l		in l	
26 3	— 0.01560	27 8	+ 0.00723
4	.01422	9	.00853
5	.01285	10	.00983
6	.01148	11	.01113
7	.01012	28 0	.01243
8	.00876	1	.01372
9	.00740	2	.01501
10	.00605	3	.01629
11	.00470	4	.01757
27 0	.00336	5	.01885
1	.00202	6	.02012
2	— 0.00069	7	.02139
3	+ 0.00064	8	.02265
4	.00197	9	.02391
5	.00329	10	.02517
6	.00461	11	.02642
27 7	+ 0.00592	29 0	+ 0.02767

The indications of the thermometer and barometer, as recorded by D'AGELET, are here collected, the time appended being the supposed sidereal time of observation. The last column, entitled log TB, gives the corresponding logarithm to be applied to the log R taken from COFFIN'S tables.

Data for computing refractions.

Date and sid. time		Therm.	Barom.		Log TB	Date and sid. time		Therm.	Barom.		Log TB
1783	*h*	°	*in*	*l*		1784	*h*	°	*in*	*l*	
Feb. 18	5	4	28	5	0.06931	March 26	7½	7	27	7	0.05032
	11	3	28	4½	.07071	June 4	5	20	28	3¾	.03629
19	11	3	28	4	.07007	5	5	19½	28	2	.03500
	12½	3	28	4	.07007	8	5	16	28	4	.04427
26	13½	2	28	4	.07211	16	5	18	28	4	.04042
March 1	5¾	6	27	5½	.05036	21	2½	18	28	0¾	.03625
6	4½	5½	26	10¾	.04232	July 4	4¼	15	28	3	.04493
18	5	6	28	6	.06653	14	5	18	28	5	.04170
	12	4	28	5½	:06995	Sept. 9	23	20	28	5	.03789
April 4	5	10	28	5½	.05791	15	18¼	18	28	2½	.03850
12	9¾	11	27	11½	.04824	16	18¾	16	28	3	.04299
14	7½	12	28	4	.05206	17	16	17	28	3	.04106
16	5½	11	28	4	.05403	18	23	17	28	2	.03978
18	13¼	12½	28	5½	.05300	20	12	17	27	8	.03200
19	6½	13	28	3½	.04946	24	6½	13	28	1	.04625
25	10¼	10	28	1¾	.05305	28	19	15	28	0	.04107
	16	8	28	2	.05741	30	23¾	8½	28	2½	.05705
28	7	13	28	2½	.04818	Oct. 1	21¾	9	28	4	.05798
29	9	13	28	2	.04754	2	22	10	28	6½	.05918
May 4	13	12½	28	0½	.04659		6	9	28	6	.06053
13	20	13	28	1	.04625	6	17½	11	28	2	.05147
16	9¼	15	28	3	.04493	8	4	8	28	0	.05483
17	12¼	15	28	1	.04236	9	7½	7	28	0	.05683
July 9	15	21½	28	1	.02992	13	7½	8	28	3	.05869
	22¾	10	28	1	.05215		7½	7½	28	2	.05841
10	13	25½	28	1	.02244	14	18½	8¾	28	2	.05592
12	23	19	28	1½	.03530	15	18½	8	28	1¾	.05709
19	23½	18	28	2	.03786		7¼	5	28	1¾	.06312
20	20	21	28	1¼	.03112	16	18½	8¼	28	2	.05691
23	16	18	28	0	.03528	Nov. 17	2½	9	28	1	.05413
	24	16	28	3	.04299	23	22½	5½	28	3	.06371
26	0¾	17	28	0½	.03784	28	21½	5	28	2¼	.06376
27	18¼	20	27	11	.03017	Dec. 28	18½	−3	27	1	.06287
	0¾	19	27	10	.03077		23¾	−4	27	11	.07812
Aug. 20	3	17	28	1½	.03913	1785					
21	1½	17½	28	1½	.03817	March 14	5½	2	28	1½	.06890
Sept. 15	2	15	28	0½	.04172	21	4½	6	28	3	.06270
17	0½	16½	28	2½	.04138	23	4½	2	28	3¾	.07179
	2¼	15	28	0½	.04172	30	13	0½	27	10¼	.06777
	4	17	28	1½	.03913	April 5	5½	5	28	4	.06600
1784						9	15	5½	28	5¼	.06659
March 22	0	2	28	0	.06697	10	12½	6	28	7	.06780
23	0	4	27	10	0.06029	11	7½	8	28	7½	0.06442

Inasmuch as the thermometer was generally read to even degrees only, never more closely than to half degrees, and the barometer was seldom read more closely than to half lines, errors of half a degree and half a line may easily be apprehended, corresponding to an uncertainty of about 0.00165 in log TB. The aggregates of the nicer corrections, b, t', &c., are under no circumstances likely to attain so large a value as 0.0023 ρ, and are so much less than those due to the errors of reading the meteorological instruments that they have been disregarded.

From the data already given, and a study of the tables of meteorological means for Paris, deduced from observations in more recent years, the following table has been empirically constructed and used for computing all the refractions. It presents, to three decimal places, those values for the meteorological factor which seem most probable, after taking into account the estimated diurnal changes of temperature and probable fluctuations of the barometer.

Adopted correction of log R *for times of observation.*

Date and sid. time		Log TB
1783	h	
Feb. 18	4	0.068
	6	.069
	8	.070
	10	.071
	12	.072
19	11	0.070
	13	.070
26	6	0.066
	10	.069
	14	.072
March 1	..	0.051
6	4	0.042
	6	.044
	8	.046
9	..	0.050
17	..	0.060
18	6	0.066
	11½	.070
21	6	0.066
	10	.067
29	..	0.064
April 2	8	0.062
	12	.066
3	10	0.058
	12	.060
	14	.062
	16	.064
4	5	0.058
	10	.061
	15	.064
5	5	0.050
	10	.055
8	7	0.049
	11	.053
9	6	0.048
	12	.054
12	..	0.049
13	9	0.048
	12	.051
14	8	0.052
	11	.054
	14	.056
16	5½	0.054
	10½	.057
	15½	.061
18	..	0.053
19	6	0.049
	11	.051
	16	.053
21	..	0.051
25	10	0.053
	13	.055
	16	.057
26	7	0.051
	10	.053
	13	.055
27	10	0.051
	13	.053
	16	.055
28	7	0.047
	11	.049
	15	.051
	19	.053
29	7½	0.046
	10½	.048
	13½	.051
30	5	0.044
	9	.047
	13	.050

Date and sid. time		Log TB
1783	h	
May 1	10	0.047
	13	.050
2	..	0.047
3	..	0.045
4	12	0.046
	16	.048
9	7	0.044
	10	.045
	13	.046
12	13	0.045
	16	.047
13	11½	0.042
	15½	.044
	19½	.046
15	12	0.042
	16	.044
	20	.046
16	9	0.044
	11½	.045
	14	.046
	16½	.047
17	..	0.043
20	11	0.042
	15	.044
29	14	0.042
	18	.044
31	11½	0.037
	14½	.039
	17½	.041
	20½	.043
June 2	11	0.039
	14	.041
3	11	0.039
	14	.041
	17	.044
July 5	14	0.031
	17	.033
	20	.036
8	14	0.030
	17	.032
	20	.034
9	15	0.030
	17	.033
	19	.038
	21	.044
	23	.051
10	10	0.022
	14	.025
12	17	0.031
	20	.033
	23	.035
14	15	0.029
	20	.033
19	13½	0.028
	18½	.033
	23½	.037
20	..	0.031
23	16	0.034
	20	.038
	24	.042
26	13	0.025
	17	.029
	21	.034
	1	.038
27	18½	0.031
	21½	.032
	0½	.034
29	13	0.028
	18	.031

Date and sid. time		Log TB
1783	h	
July 29	23	0.034
30	..	0.032
Aug. 17	..	0.038
20	17	0.033
	22	.036
	3	.039
21	21½	0.034
	23½	.036
	1½	.038
Sept. 2	17	0.032
	21	.035
6	17½	0.033
	19½	0.034
7	17	0.033
	21	.034
9	..	0.041
15	21	0.036
	2	.041
17	0½	0.041
	2½	.042
	4½	.042
25	..	0.042
1784		
March 22	0	0.067
	4	.068
	8	.069
23	0	0.060
	4	.062
	8	.063
26	..	0.059
May 25	..	0.038
June 4	..	0.036
5	5	0.035
	9	.039
	13	.043
	17	.047
8	5	0.044
	10	.048
	15	.052
16	5	0.041
	10	.045
	15	.049
21	2½	0.036
	4½	.038
	6½	.040
22	..	0.039
July 4	4½	0.045
	7½	.040
14	5	0.042
	8	.039
Sept. 7	19	0.036
	22	.038
9	17½	0.039
	18½	.041
14	11	0.040
	16	.043
	21	.045
15	18½	0.045
	22½	.047
	2½	.049
16	19	0.044
	23	.047
	3	.049
17	16½	0.041
	20½	.045
	0½	.049
18	20	0.042
	23½	.044

Date and sid. time		Log TB
1784	h	
Sept. 20	..	0.040
24	..	0.043
26	..	0.049
28	19	0.041
	23	.043
	3	.046
30	23	0.055
	2	.057
	5	.059
Oct. 1	19	0.056
	22	.058
2	22½	0.059
	2½	.061
	6½	.062
6	16	0.051
	22	.053
	4	.055
8	0	0.056
	4	.057.
9	17½	0.051
	0½	.054
	7½	.057
13	7	0.057
13	4½	0.056
	7½	0.058
14	..	0.056
15	18	0.057
	1	.060
	8	0.063
16	18	0.057
	21	.060
	0	.063
Nov. 17	20	0.052
	0	.054
	4	.056
23	21	0.063
	0	.065
28	18	0.061
	22	.063
Dec. 28	18	0.063
	0	.071
1785		
March 14	5½	0.069
	8½	.071
19	5½	0.069
	8½	.071
21	4	0.063
	7	.065
	10	.067
23	4	0.071
	8	.072
	12	.074
30	11	0.067
	13	.069
April 5	5	0.068
	10	.071
9	8	0.065
	12	.066
	16	.067
10	8	0.065
	12	.068
11	7½	0.064
	10½	.067
26	7	0.060
	12	.062
29	10	0.061
	12	.063

§7. BASIS OF REDUCTION.

A very cursory examination of the original observations will suffice to show the hopelessness of any attempt at reduction by other methods than purely differential ones. Not only is the quadrant an instrument ill adapted, at the best, for the determination of right-ascensions, but D'AGELET'S quadrant proves to have been peculiarly irregular in form. The simplest essays at determining the azimuth of its plane show the futility of any such attempt by ordinary methods; and the observations, being isolated and independent, preclude the facilities which zone-reductions afford. No record is to be found of any endeavors by D'AGELET himself to determine the position of his quadrant with reference either to the meridian or the nadir-point. A few scattered notes, mentioning the apparent index-error, or the approximate correction to the time of transit, as given by some particular star, constitute the sum total of the explicit information recorded on these subjects.

A means of obtaining the requisite data for a differential reduction was at hand in the "*Time-Star List*," prepared by me for the use of the U. S. Coast Survey, and of which a revised and improved edition[1] was published in 1862. This list contains 132 stars, well adapted for use in determining time by observers in the northern hemisphere; and gives the right-ascensions and proper motions deduced by the method of least squares from the best recorded observations, after referring them to the equinoctial points of ARGELANDER'S Åbo Catalogue[2], slightly modified to conform to PETERS'S value of the nutation. Since the publication of this list of right-ascensions, I have computed the declinations in a similar manner, and thus the data for an accurate determination of the positions at the time of D'AGELET'S observations were before me.

Of these stars, not only were 112 found among those observed by D'AGELET, but, most happily, a considerable number prove to have been observed by him on almost every night; there being but one date when any fixed stars were observed without some one of these occurring among them, and an ample number being found on all those dates when a large number of stars were observed. On about one-half of the nights the number of standard stars was not less than six, and on two-thirds of them it was not less than four.[3]

The dates of observation and the standard stars available for the reduction are exhibited in the following table, in which the stars are designated by their respective numbers in the Time-Star List.

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[1] Standard Mean Right-Ascensions of Circumpolar and Time Stars.—Washington, 1862.

[2] DLX Stellarum Fixarum Positiones Mediæ, ineunte anno 1830.—Helsingfors, 1835.

[3] The observations of the 22d June, 1784, are not counted, having continued for less than ten minutes, and comprising but four stars.

Dates of observation, and standard stars observed.

Date.	Stars.
1783.	
Feb. 18	15, 22, 24, 25, 26, 27, 29, 32, 33, 34, 35, 49, 50, 51, 53, 54, 58.
19	58, 62, 63, 66, 67.
26	32, 33, 34, 35, 38, 39, 40, 41, 42, 49, 51, 52, 53, 54, 56, 58, 60, 63, 67, 68.
Mar. 1	32.
6	22, 28, 32, 33, 34, 35, 38, 39, 42.
9	32, 33.
17	25, 26, 27, 28, 30, 32, 33.
18	25, 26, 27, 28, 30, 32, 33, 35, 63.
21	25, 26, 30, 32, 33, 35, 49, 50, 51.
29	49, 50, 51, 52, 53.
Apr. 2	49, 50, 51, 52, 54, 56, 58.
3	54, 56, 58, 59, 60, 62, 63, 67, 68, 74, 81.
4	26, 27, 28, 32, 33, 34, 35, 38, 40, 41, 42, 49, 50, 51, 52, 62, 63, 67, 68.
5	27, 28, 32, 34, 40, 42, 49, 51, 52, 53, 54.
7	32, 67.
8	39, 41, 49, 51, 54.
9	15, 22, 27, 30, 32, 33, 34, 35, 39, 40, 41, 67.
12	51, 60.
13	51, 52, 54, 59, 60.
14	39, 40, 41, 51, 67.
16	32, 34, 35, 41, 51, 52, 56, 58, 67.
18	67, 71, 74.
19	35, 40, 41, 52, 58, 59, 60, 82, 85, 86.
21	71, 76.
25	56, 62, 66, 67.
26	39, 40, 41, 45, 50, 51, 56.
27	56, 70, 71, 78, 79, 81.
28	35, 40, 41, 50, 51, 67, 73, 75, 77, 79, 81, 92, 93, 95, 98, 103, 105, 106, 107, 112.
29	35, 39, 40, 41, 47, 49, 50, 51, 52, 56, 58, 59, 60, 67.
30	25, 26, 27, 32, 34, 35, 39, 40, 41, 47, 49, 50, 51.
May 1	53, 63, 66.
2	47, 50, 51.
3	39, 40, 41, 51, 52, 56.
4	67, 76, 83.
9	39, 40, 41, 51, 52, 53, 54, 62, 66, 67, 81.
12	67, 78.
13	60, 73, 77, 81, 89, 92, 105, 106, 107, 112.
15	35, 67, 77, 81, 87, 89, 98, 103, 105, 106, 107.
16	47, 49, 51, 52, 58, 60, 76, 83, 85, 86.
17	67, 68, 70, 92, 93.
20	60, 62, 67, 70, 71, 75.
29	78, 79, 84, 90, 92, 93.
31	60, 67, 71, 85, 90, 92, 98, 100, 111, 112.
June 2	60, 65, 67, 71.
3	60, 65, 67, 71, 89.
July 5	67, 71, 85, 100, 106, 107.
8	71, 73, 75, 76, 78, 79, 85, 87, 98, 106, 107.
9	76, 78, 79, 80, 85, 106, 107, 110, 111, 112, 118, 122, 128.
10	51, 60, 67, 69, 71, 73, 74, 76, 78, 79, 80, 83, 98, 106, 107, 112.
12	92, 94, 98, 103, 105, 106, 109, 112, 114, 116, 128.
14	78, 106.
19	69, 71, 73, 74, 78, 79, 80, 82, 85, 92, 101, 103, 105, 106, 107, 109, 112, 114, 116, 117, 122, 126, 128, 129, 1, 2, 25, 26.
20	112.
23	85, 86, 92, 112, 117, 122, 125, 126, 2.
26	67, 71, 73, 74, 75, 76, 79, 80, 83, 85, 86, 88, 90, 92, 98, 106, 107, 112, 114, 116, 5.
27	97, 98, 99, 103, 106, 112, 116, 128, 5.
1783.	
July 29	67, 69, 71, 74, 78, 85, 92, 98, 106, 112, 129.
30	112.
Aug. 17	129, 1, 2.
20	90, 98, 101, 106, 129, 1, 2, 7, 9, 10, 13, 15.
21	129, 1, 2, 7.
Sept. 2	90, 92, 98, 112.
6	92, 93, 94, 98.
7	92, 98.
9	19, 21, 22, 25, 26, 27.
15	118, 120, 1, 2, 5, 8, 9, 10.
17	5, 7, 9, 10, 13, 14, 16, 18, 19.
25	33, 34, 35, 39.
1784.	
Mar. 22	34, 35, 38, 40, 41.
23	22, 25, 26, 27, 34, 35, 39, 40.
26	34, 35, 36, 39, 40.
May 25	68, 69, 71.
June 5	25, 26, 71.
8	25, 71, 72.
16	25, 26, 35, 51, 69, 70, 71, 73.
21	15, 22.
July 4	22, 25, 26.
14	25, 26, 106.
Sept. 7	105, 106, 109, 112, 114, 118, 121, 122.
9	98.
14	105, 106, 107, 108, 109, 112, 118, 121.
15	106, 112, 1, 2, 4.
16	103, 106, 112, 118, 120, 123, 1, 2, 4.
17	83, 85, 105, 106, 112, 128, 1.
18	111, 116, 118, 1.
20	26, 28, 31.
24	34, 35.
26	51.
28	115, 1, 2.
30	1, 2, 10, 13, 15, 17, 20.
Oct. 1	86, 105, 106 111, 112, 120.
2	127, 128, 1, 2, 15, 17, 22, 24, 25, 26, 27, 28, 32, 33, 34, 35, 39, 40, 41.
6	92, 120, 122, 123, 5, 15, 17.
8	5, 7, 17.
9	92, 98, 112, 120, 10, 12, 13, 15, 17, 22, 21, 24, 25, 26, 27, 30, 33, 34, 35, 36, 38, 39, 40.
12	38, 39, 40.
13	20, 22, 25, 26, 28, 30, 34, 35, 36, 38, 40.
14	98.
15	98, 102, 112, 114, 116, 13, 15, 25, 26, 27, 28, 35, 38.
16	98, 106, 112, 116, 122.
Nov. 17	106, 115.
23	116, 118, 126.
28	98, 106, 107, 112, 115.
Dec. 28	98, 130.
1785.	
Mar. 14	30, 33, 34, 35, 38, 44.
19	34, 35, 38, 41.
21	22, 25, 26, 27, 28, 30, 33, 34, 38.
23	22, 26, 38, 52.
30	35, 67.
April 5	28, 30, 35, 40, 41, 51.
9	—.
10	51.
11	41, 44, 51.
26	40, 51.
29	53.

The adopted mean places for 1783.0 are presented in the annexed table, together with the logarithmic constants for reduction to apparent places.

Mean Places and Constants for Standard Stars.

No.	Name	1783.0 α	1783.0 δ	Log a	Log b	Log c	Log d	Log a'	Log b'	Log c'	Log d'
		h m s	° ' "								
1	α Andromedæ.	23 57 12.34	+27 53 29.3	0.48600	8.54757	8.87451	n6.96364	1.30234	8.08609	9.59040	9.67003
2	γ Pegasi . .	0 2 4.85	+13 58 34.4	0.48763	8.21990	8.83694	6.79507	1.30235	n7.95811	9.62229	9.38294
4	α Cassiopeæ .	32 41.34	—19 10 49.4	0.47776	n8.36088	8.84428	8.00145	1.29793	n9.15273	9.65966	n9.51216
5	ε Piscium . .	51 41.72	+ 6 43 5.0	0.49215	7.88389	8.81576	8.17649	1.29123	n9.34959	9.60746	9.05700
7	η Piscium . .	1 19 53.92	+14 13 14.8	0.50329	8.20083	8.81049	8.37096	1.27543	n9.53353	9.52750	9.36340
8	ο Piscium . .	33 57.27	+ 8 3 33.7	0.49776	7.93740	8.79066	8.42872	1.26475	n9.60050	9.57276	9.10918
9	β Arietis . .	42 41.32	+19 44 20.7	0.51565	8.33360	8.80506	8.48691	1.25723	n9.63671	9.41885	9.48340
10	α Arietis . .	54 58.76	+22 25 37.8	0.52323	8.38241	8.80094	8.54012	1.24525	n9.68206	9.33814	9.52435
12	γ Ceti . . .	2 32 4.45	+ 2 18 40.4	0.49189	7.32642	8.72068	8.61378	1.19879	n9.78952	9.61162	8.50216
13	α Ceti . . .	50 57.29	+ 3 13 39.1	0.49439	7.44113	8.69056	8.65625	1.16833	n9.83165	9.59685	8.61653
14	ζ Arietis . .	3 2 27.69	+20 13 38.1	0.53436	8.23502	8.69628	8.70562	1.14714	n9.85411	9.20501	9.38348
15	α Persei . .	8 55.47	+49 4 21.0	0.62354	8.71776	8.83950	8.87335	1.13427	n9.86575	n9.43175	9.71016
16	δ Persei . .	27 33.42	+47 4 34.3	0.62348	8.64588	8.78119	8.88666	1.09278	n9.89588	n9.44795	9.65510
17	η Tauri . .	34 37.11	+23 25 9.3	0.54865	8.23334	8.63405	8.76730	1.07517	n9.90605	8.89332	9.37209
18	ζ Persei . .	40 31.94	+31 13 24.0	0.57230	8.36367	8.64896	8.80588	1.05952	n9.91407	n8.73239	9.47176
19	γ^1 Eridani . .	47 54.79	—14 8 18.2	0.44526	n7.96160	8.57361	8.76077	1.03873	n9.92349	9.79650	n9.12413
20	γ Tauri . .	4 7 27.85	+15 5 16.1	0.52995	7.92756	8.51264	8.78453	0.97588	n9.94540	9.27854	9.08842
21	ε Tauri . .	15 58.01	+18 40 56.7	0.54120	7.99498	8.48939	8.80105	0.94434	n9.95363	9.09118	9.14756
22	Aldebaran .	23 29.27	+16 3 22.5	0.53425	7.89451	8.45268	8.80149	0.91386	n9.96030	9.21601	9.05332
24	11 Orionis . .	52 10.93	+15 5 4.7	0.53343	7.71933	8.30394	8.81984	0.76717	n9.98070	9.23104	8.88020
25	Capella . .	5 0 41.28	+45 45 18.0	0.64326	8.24348	8.38833	8.96552	0.71047	n9.98529	n9.59051	9.26325
26	Rigel . .	4 6.99	— 8 28 0.1	0.45898	n7.37947	8.21146	8.81563	0.68516	n9.98696	9.75760	n8.55080
27	β Tauri . .	12 35.28	+28 24 18.9	0.57730	7.86956	8.19220	8.87025	0.61496	n9.99064	n8.92262	8.98988
28	δ Orionis . .	20 55.59	— 0 28 29.6	0.48566	n5.97161	8.05356	8.81759	0.53200	n9.99366	9.64570	n7.14769
29	α Leporis . .	23 9.76	—17 59 28.8	0.42190	n7.53969	8.04992	8.84005	0.50661	n9.99437	9.85600	n8.69401
30	ε Orionis . .	25 12.55	— 1 21 21.5	0.48276	n6.37761	8.00366	8.81900	0.48200	n9.99497	9.66029	n7.55358
31	α Columbæ .	31 47.67	—34 12 3.1	0.34569	n7.72139	7.98816	8.89580	0.39142	n9.99669	9.95523	n8.82228
32	α Orionis . .	43 25.69	+ 7 20 59.4	0.51089	6.79330	7.68631	8.82635	0.16119	n9.99886	9.48139	7.96580
33	μ Geminorum .	6 9 49.70	+22 36 24.7	0.55951	n7.07556	n7.49081	8.85822	n9.93456	n9.99960	8.22401	n8.21695
34	γ Geminorum .	25 10.29	+16 34 0.9	0.53983	n7.33722	n7.88215	8.83969	n0.34220	n9.99737	9.12287	n8.49488
35	Sirius . .	35 34.99	—16 25 53.2	0.42827	7.48313	n8.03151	8.83676	n0.49186	n9.99474	9.84254	8.64111
36	ε Canis Majoris	50 5.93	—28 41 18.9	0.37218	7.89827	n8.21698	8.87033	n0.63856	n9.98954	9.92914	9.01748
38	δ Geminorum .	7 7 8.83	+22 21 52.1	0.55599	n7.89885	n8.31850	8.83897	n0.76299	n9.98109	8.57031	n9.04096
39	α^2 Geminorum .	20 43.36	+32 20 43.2	0.58727	n8.16087	n8.43249	8.86995	n0.83772	n9.97281	n9.13287	n9.26373
40	Procyon . .	27 55.93	+ 5 46 0.4	0.50458	n7.40063	n8.39860	8.79345	n0.87486	n9.96734	9.52988	n8.57452
41	β Geminorum .	32 0.68	+28 32 0.7	0.57285	n8.15120	n8.47208	8.84417	n0.89430	n9.96402	n8.76552	n9.27105
42	φ Geminorum .	40 11.30	+27 18 38.1	0 56775	n8.16359	n8.50195	8.83235	n1.92908	n9.95711	n8.47596	n9.28834
44	ε Hydræ . .	8 35 16.18	+ 7 12 8.7	0.50545	n7.72273	n8.62451	8.71896	n1.09953	n9.89161	9.52247	n8.89539
45	ι Ursæ Majoris	44 15.68	+48 52 49.1	0.52666	n8.10314	n8.65891	8.71875	n1.11988	n9.87735	9.31660	n9.26174
47	α Hydræ . .	9 16 55.29	— 7 43 38.9	0.47012	7.83573	n8.70716	8.64280	n1.18116	n9.81493	9.71432	9.00786
49	ε Leonis . .	33 29.86	+24 45 49.8	0.53638	n8.39236	n8.77028	8.64148	n1.20684	n9.77567	9.15927	n9.52656
50	μ Leonis . .	40 23.22	+27 1 10.9	0.53918	n8.44532	n8.78798	8.63164	n1.21625	n9.75754	9.10316	n9.57121
51	Regulus . .	56 47.79	+13 1 12.7	0.50906	n8.12194	n8.76920	8.54455	n1.23634	n9.70932	9.48799	n9.28671
52	γ^1 Leonis . .	10 7 58.89	+20 55 53.8	0.51992	n8.35248	n8.79948	8.52524	n1.24829	n9.67168	9.37610	n9.49891
53	ρ Leonis . .	21 22.15	+10 25 2.6	0.50148	n8.04685	n8.78960	8.45147	n1.26084	n9.62034	9.54597	n9.21572
54	l Leonis . .	37 50.06	+11 41 17.1	0.50073	n8.11113	n8.80449	8.37818	n1.27385	n9.54517	9.54906	n9.27812
56	δ Leonis . .	11 2 32.42	+21 42 34.1	0.50550	n8.41016	n8.84205	8.25047	n1.28857	n9.39462	9.49354	n9.55429
58	τ Leonis . .	16 46.41	+ 4 2 56.8	0.48973	n7.66614	n8.81722	8.09798	n1.29459	n9.27298	9.62304	n8.84113
59	91 Leonis . .	25 50.35	+ 0 22 21.8	0.48739	n6.63308	n8.81908	7.99566	n1.29753	n9.17174	9.63664	n7.80915
60	β Leonis . .	37 58.65	+15 47 2.5	0.49231	n8.27314	n8.83859	7.82260	n1.30036	n8.98200	9.59292	n9.43254
62	ο Virginis . .	54 8.89	+ 9 56 20.7	0.48806	n8.06739	n8.83034	7.23757	n1.30223	n8.40709	9.62655	n9.23691
63	η Virginis . .	12 8 48.45	+ 0 32 25.7	0.48714	n6.79852	n8.82361	n7.40851	n1.30205	8.58458	9.63796	n7.97460
65	12 Canum Ven.	45 50.92	+39 29 36.5	0.45506	n8.73120	n8.92772	n8.23470	n1.29362	9.29824	9.66408	n9.79472
66	θ Virginis . .	58 43.82	— 4 22 33.4	0.49086	7.69325	n8.81076	n8.22910	n1.28795	9.40392	9.61650	8.86817
67	Spica . .	13 13 47.00	—10 1 22.7	0.49766	8.04831	n8.80769	n8.33083	n1.27947	9.50024	9.57106	9.21771
68	ζ Virginis . .	23 38.86	+ 0 31 8.5	0.48660	n6.75186	n8.79434	n8.37652	n1.27278	9.55259	9.64082	n7.92793
69	η Ursæ Majoris	38 58.01	+50 24 7.9	0.37905	n8.86447	n8.97768	n8.64123	n1.26055	9.62173	9.77757	n9.84497
70	η Bootis . .	44 20.98	+19 29 31.7	0.45673	n8.32623	n8.80286	n8.49272	n1.25570	9.64319	9.74504	n9.47668
71	Arcturus .	14 5 46.08	+20 19 9.5	0.44904	n8.32350	n8.78286	n8.56919	n1.23341	9.71737	9.76956	n9.47169
72	θ Bootis . .	17 48.38	+52 51 40.7	0.31628	n8.86083	n8.95929	n8.79565	n1.21861	9.75260	9.85314	n9.81779
73	ε Bootis . .	35 30.53	+27 59 53.8	0.41899	n8.44081	n8.76923	n8.67569	n1.19363	9.79772	9.83118	n9.56285

Mean Places and Constants for Standard Stars—Continued.

No.	Name	1783.0 α	1783.0 δ	Log a	Log b	Log c	Log d	Log a′	Log b′	Log c′	Log d′
		h m s	° ′ ″								
74	α² Libræ	14 38 54.31	−15 7 44.7	0.51873	n8.14181	n8.72522	n8.64482	n1.18836	9.80559	9.40187	n9.30258
75	β Bootis	53 46.32	+41 15 18.6	0.35482	n8.62794	n8.80878	n8.78517	n1.16334	9.83736	9.89199	n9.68012
76	β Libræ	15 5 21.14	− 8 34 12.8	0.50736	7.84113	n8.66788	n8.68818	n1.14147	9.85940	9.50715	9.01235
77	μ¹ Bootis	16 17.56	+38 8 49.1	0.35728	n8.53534	n8.74456	n8.80652	n1.11867	9.87826	9.90748	n9.60708
78	α Coronæ Bor.	25 30.23	+27 27 18.3	0.40271	n8.33486	n8.67113	n8.76860	n1.09770	9.89280	9.87241	n9.45907
79	α Serpentis	33 35.48	+ 7 7 13.3	0.46782	n7.69594	n8.60270	n8.73187	n1.07780	9.90460	9.72447	n8.86868
80	ε Serpentis	40 0.63	+ 5 8 37.9	0.47304	n7.53671	n8.58423	n8.73904	n1.06093	9.91337	9.70399	n8.71105
81	ε Coronæ Bor.	48 36.37	+27 31 0.9	0.39536	n8.27502	n8.61038	n8.80039	n1.03670	9.92434	9.88828	n9.39898
82	δ Scorpii	47 32.00	−21 59 18.1	0.41647	n8.17627	n8.59542	n8.78097	n1.03984	9.92302	9.85760	n9.31821
83	δ Ophiuchi	16 2 59.41	− 3 7 17.9	0.49613	7.24993	n8.51357	n8.76531	n0.99138	9.94075	9.58652	8.42538
84	τ Herculis	13 13.70	+46 50 18.6	0.25460	n8.50396	n8.64111	n8.93973	n0.95481	9.95106	9.97707	n9.51530
85	Antares	16 7.84	−25 55 59.0	0.56293	8.15213	n8.51132	n8.82378	n0.94369	9.95378	n7.43933	9.28212
86	ζ Ophiuchi	25 13.60	−10 6 44.3	0.51705	7.67917	n8.43476	n8.79247	n0.90642	9.96176	9.42591	8.84847
87	η Herculis	35 27.78	+39 20 40.6	0.31129	n8.29458	n8.49251	n8.90530	n0.85934	9.96976	9.96712	n9.35905
88	κ Ophiuchi	47 24.44	+ 9 43 31.8	0.45525	n7.55134	n8.32363	n8.80805	n0.79580	9.97785	9.76969	n8.72113
89	d Herculis	53 36.20	+33 53 33.9	0.34430	n8.10702	n8.36066	n8.88630	n0.75824	9.98151	9.95172	n9.20223
90	α¹ Herculis	17 4 45.53	+14 39 3.3	0.43630	n7.61915	n8.21612	n8.82552	n0.68023	9.98726	9.82325	n8.78089
92	α Ophiuchi	24 52.10	+12.43 53.5	0.44278	n8.36175	n8.01854	n8.82960	n0.48619	9.99488	9.80700	n8.52702
93	μ Herculis	37 58.42	+27 51 32.4	0.37417	n7.52910	n7.85950	n8.87540	n0.28446	9.99799	9.92881	n8.65169
94	γ³ Sagittarii	51 52.38	−30 24 22.9	0.58601	7.14206	n7.43780	n8.88790	n9.85200	9.99973	n9.11857	8.25389
95	μ Sagittarii	18 0 47.35	−21 5 50.5	0.55467	n5.93431	6.37799	n8.85397	8.82639	0.00000	8.65456	n7.08207
97	1 Aquilæ	23 23.95	− 8 22 45.4	0.51408	n7.00035	7.83682	n8.82631	0.31061	9.99773	9.45411	n8.17178
98	Vega	29 35.53	+38 35 30.0	0.30361	7.83579	8.04073	n8.92732	0.41215	9.99637	9.98134	8.90484
99	β Lyræ	42 4.21	+33 7 18.4	0.34488	7.89980	8.16227	n8.89356	0.56372	9.99264	9.95463	8.99888
100	σ² Sagittarii	41 48.08	−26 32 49.3	0.57143	n7.78113	8.13089	n8.86504	0.56096	9.99274	n8.70910	n8.90884
101	ζ Aquilæ	55 26.35	+13 33 16.9	0.44052	7.58544	8.21557	n8.82335	0.68176	9.98717	9.81263	8.74926
102	d Sagittarii	19 4 55.68	−19 19 20.5	0.54665	n7.81518	8.29551	n8.83142	0.74879	9.98233	8.96384	n8.96609
103	δ Aquilæ	14 33.33	+ 2 41 45.5	0.47868	7.00138	8.32901	n8.80100	0.80699	9.97661	9.67966	8.17699
105	γ Aquilæ	35 56.51	+10 5 52.0	0.45529	7.68357	8.43976	n8.79147	0.91144	9.96078	9.76907	8.85288
106	Altair	40 11.60	+ 8 18 30.1	0.46144	7.61502	8.45523	n8.78561	0.92910	9.95711	9.74856	8.78654
107	β Aquilæ	44 39.14	+ 5 52 38.9	0.46940	7.48102	8.47056	n8.77924	0.94674	9.95305	9.71909	8.65483
108	τ Aquilæ	53 32.04	+ 6 40 40.8	0.47655	7.83678	8.77125	n8.50390	1.24675	9.67703	9.68704	9.00992
109	α² Capricorni	20 6 0.06	−13 12 12.9	0.52350	n7.91235	8.55364	n8.76632	1.02046	9.93077	9.35774	n9.07680
110	π Capricorni	14 52.81	−18 54 34.8	0.53802	n8.10305	8.59240	n8.76800	1.04677	9.92000	9.14971	n9.25504
111	ε Delphini	22 50.69	+10 34 37.4	0.45754	7.86132	8.59754	n8.74089	1.06856	9.90954	9.76027	9.02997
112	α Cygni	34 2.28	+44 30 45.3	0.30997	8.61076	8.76501	n8.86425	1.09661	9.89348	9.93356	9.64000
114	ν Cygni	49 5.39	+40 20 20.8	0.34832	8.58074	8.76963	n8.81103	1.13017	9.86920	9.90842	9.63891
115	61¹ Cygni	57 11.42	+37 41 41.1	0.36759	8.55624	8.76991	n8.78004	1.14673	9.85449	9.89258	9.63068
116	ζ Cygni	21 3 42.52	+29 20 43.7	0.40611	8.43020	8.73995	n8.72589	1.15877	9.84234	9.85691	9.54665
117	1 Pegasi	12 3.17	+18 53 4.9	0.44160	8.22920	8.71911	n8.67334	1.17354	9.82540	9.79747	9.38127
118	β Aquarii	20 7.30	− 6 30 59.6	0.50087	n7.76616	8.71118	n8.63452	1.18682	9.80779	9.55438	n8.93944
120	ε Pegasi	33 31.59	+ 8 53 17.6	0.46918	7.92262	8.73367	n8.60476	1.20688	9.77560	9.71691	9.09346
121	μ Capricorni	41 26.53	−14 33 51.4	0.51429	n8.15385	8.75337	n8.59276	1.21764	9.75466	9.44284	n9.31575
122	α Aquarii	54 37.92	− 1 21 59.6	0.48955	n7.13311	8.75553	n8.54015	1.23387	9.71612	9.62490	8.30908
123	θ Aquarii	22 5 22.18	− 8 51 24.7	0.50112	n7.95980	8.77237	n8.50997	1.24562	9.68085	9.55036	n9.13068
125	η Aquarii	24 12.10	− 1 13 48.6	0.48886	n7.11684	8.78490	n8.43245	1.26327	9.60845	9.62871	n8.29284
126	ζ Pegasi	30 38.66	+ 9 42 11.8	0.47474	8.02300	8.79628	n8.41004	1.26849	9.57988	9.69196	9.19283
127	λ Aquarii	41 17.15	− 8 43 46.9	0.49689	n7.98404	8.80282	n8.35626	1.27623	9.52730	9.57749	n9.15505
128	α Piscis Austr.	45 37.23	−30 46 4.0	0.52172	n8.57544	8.86652	n8.39344	1.27908	9.50363	9.32195	n9.68564
129	α Pegasi	53 57.78	+14 2 26.5	0.47356	8.20371	8.81880	n8.29066	1.28409	9.45358	9.69028	9.36662
130	θ Piscium	23 16 57.95	+ 5 11 21.3	0.48398	7.77434	8.81799	n8.09676	1.29467	9.27107	9.65247	8.94865

My friend Professor WINLOCK, Superintendent of the American Ephemeris, has kindly furnished me with the logarithmic day-numbers for the period over which these observations extend. They are taken from the extensive and valuable series of tables now preparing under his direction, and are here appended. Like those of the *Tabulæ Regiomontanæ*, they hold good for the beginning of the sidereal day of the fictitious year.

Logarithmic day-numbers.

Date	Log A	Log B	Log C	Log D	E
1783.					″
Jan. 0	n 7.5011	n 0.9346	n 0.5141	1.3038	− 0.001
10	8.5491	n 0.9395	n 0.8112	1.2830	
20	8.8570	n 0.9472	n 0.9766	1.2465	
30	9.0240	n 0.9562	n 1.0854	1.1917	
Feb. 9	9.1346	n 0.9654	n 1.1610	1.1133	
19	9.2145	n 0.9739	n 1.2134	1.0009	+ 0.003
Mar. 1	9.2759	n 0.9805	n 1.2478	0.8305	
11	9.3257	n 0.9846	n 1.2672	0.5222	
21	9.3685	n 0.9859	n 1.2730	n 9.2860	
31	9.4075	n 0.9842	n 1.2658	n 0.5669	
April 10	9.4448	n 0.9797	n 1.2455	n 0.8486	+ 0.001
20	9.4818	n 0.9730	n 1.2108	n 1.0087	
30	9.5190	n 0.9647	n 1.1596	n 1.1152	
May 10	9.5567	n 0.9556	n 1.0876	n 1.1901	
20	9.5943	n 0.9468	n 0.9864	n 1.2430	
30	9.6314	n 0.9392	n 0.8382	n 1.2790	+ 0.003
June 9	9.6673	n 0.9337	n 0.5915	n 1.3009	
19	9.7014	n 8.9309	n 9.9119	n 1.3101	
29	9.7332	n 0.9311	0.3597	n 1.3073	
July 9	9.7623	n 0.9342	0.7269	n 1.2922	
19	9.7885	n 0.9397	0.9154	n 1.2641	+ 0.010
29	9.8118	n 0.9470	1.0377	n 1.2209	
Aug. 8	9.8323	n 0.9551	1.1234	n 1.1591	
18	9.8502	n 0.9630	1.1848	n 1.0723	
28	9.8658	n 0.9698	1.2279	n 0.7473	
Sept. 7	9.8796	n 0.9747	1.2559	n 0.7510	+ 0.011
17	9.8922	n 0.9771	1.2704	n 0.3500	
27	9.9042	n 0.9767	1.2722	0.0945	+ 0.011
1784.					
Mar. 11	9.5079	n 0.9574	n 1.2672	0.5222	+ 0.019
21	9.5363	n 0.9575	n 1.2730	n 9.2859	
31	9.5629	n 0.9544	n 1.2658	n 0.5669	
April 10	9.5891	n 0.9483	n 1.2455	n 0.8486	+ 0.017
20	9.6157	n 0.9397	n 1 2108	n 1.0087	
30	9.6432	n 0.9293	n 1.1596	n 1.1152	
May 10	9.6715	n 0.9181	n 1.0876	n 1.1901	
20	9.7005	n 0.9071	n 0.9864	n 1.2430	
30	9.7296	n 0.8973	n 0.8382	n 1.2790	+ 0.019
June 9	9.7583	n 9.8897	n 0.5914	n 1.3009	
19	9.7859	n 0.8852	n 9.9118	n 1.3101	
29	9.8121	n 0.8839	0.3598	n 1.3073	
July 9	9.8363	n 0.8859	0.7269	n 1.2922	
19	9.8583	n 0.8906	0.9154	n 1.2641	+ 0.026
29	9.8781	n 0.8973	1.0377	n 1.2209	
Aug. 8	9.8955	n 0.9049	1.1234	n 1.1591	
18	9.9109	n 0.9124	1.1848	n 1.0723	
28	9.9243	n 0.9187	1.2279	n 0.9473	
Sept. 7	9.9363	n 0.9228	1.2559	n 0.7510	+ 0.027
17	9.9472	n 0.9242	1.2704	n 0.3500	
27	9.9575	n 0.9224	1.2722	0.0945	
Oct. 7	9.9678	n 0.9172	1.2612	0.6728	
17	9.9785	n 0.9088	1.2364	0.9060	
27	9.9899	n 0.8978	1.1959	1.0483	+ 0.025
Nov. 6	0.0022	n 0.8848	1.1362	1.1454	
16	0.0155	n 0.8711	1.0507	1.2139	
26	0.0296	n 0.8581	0.9262	1.2614	
Dec. 6	0.0442	n 0.8471	0.7294	1.2920	
16	0.0591	n 0.8394	0.3253	1.3078	+ 0.029
26	0.0737	n 0.8357	n 0.0810	1.3096	
36	0.0877	n 0.8364	n 0.6522	1.2977	
1785.					
Mar. 11	9.6230	n 0.8773	n 1.2672	0.5222	+ 0.034
21	9.6444	n 0.8759	n 1.2730	n 9.2857	
31	9.6648	n 0.8708	n 1.2658	n 0.5669	
April 10	9.6852	n 0.8620	n 1.2455	n 0.8486	+ 0.032
20	9.7062	n 0.8501	n 1.2108	n 1.0087	
30	9.7282	n 0.8358	n 1.1596	n 1.1153	+ 0.032

Instrumental errors affecting the right-ascensions.

The first attempts at determining the clock correction, Δt, disclosed large discordances between the indications of the different stars, as well as the fact that these were not due to any error of adjustment, but must arise from a distortion of the limb of the quadrant. The only course open was to determine the clock-rate by observations of the same stars made on different nights, and then to investigate the nearly constant differences between the values of Δt, as given by different stars. By means of a table of these differences, the transit of each star may be reduced to an arbitrarily assumed plane parallel with the meridian; and from their discussion a first approximation was obtained to the amount and character of the distortion of the quadrant. The locus of these special constant corrections, arranged according to the zenith distances of stars, indicated some great indentation or flexure in the vicinity of 37° 20′ of zenith distance, corresponding to about 11½° of declination, and a decided distortion of the limb of the quadrant in the same direction both above and below. The inference is irresistible to my mind that the limb, along which the eye-end of the telescope moved, and to which it seems to have been confined by clamp-rollers, had experienced some severe blow, and that this not only injured its figure in the region above named, but had really bent the whole limb.

To determine the precise amount and law of this deviation from a plane, in the path described by the line of collimation, no direct means are available. Only the assumption of an approximately correct value for the transit-error due to this cause, in the case of each standard star, can guide to a knowledge of the azimuthal deviation of the plane of the quadrant. But without some determination of the azimuth it is uncertain what portion of the discordances between the results given by different stars is due to error of adjustment, and what to irregularity of form. Furthermore, some plane must be arbitrarily assumed to represent the normal plane of the quadrant; and to this the corrections to be deduced for the several standard stars must reduce them.

The best plane for adoption, as that of the quadrant, seems to be that one for which the sum of the squares of the constant errors is a minimum. And this, although not absolutely attained, is nearly approximated by the indirect process to which I have had recourse.

After applying the best attainable values of the corrections due the time of transit of the several standard stars, which correction is denoted by q, so that

$$a - T = \Delta t + m_0 + n \operatorname{tg} \delta + q$$

where T represents the sidereal time of transit, reduced by the use of the clock-rate to a fixed epoch; Δt being the clock-correction at that epoch, and $m_0 = m - q$; the equations of condition

$$a - T - q = (\Delta t + m) + n \operatorname{tg} \delta$$

were solved, by the method of least squares, for every date.

The several outstanding residuals thus afford new values of q for each star, which being then combined by weights, depending on the apparent accuracy of the observations, and upon the total number of determining stars on the respective nights, afforded a means of repeating the process with advantage. Thus each successive series of solutions gave a closer

3

approach to the true values of q, and to a determination of the azimuth of that normal plane to which the employment of these values reduced the observed transits. And this plane being inferred from the entire series of dates, and by the use of least squares on each individual date, cannot be far from the truth. This process was repeated so long as the individual values of the residuals, and the various determinations of n, were found to be rendered more accordant; and the present reduction is based upon the results of the sixth successive series of solutions. The accordance of the values of n thus attained yields a strong corroboration of the trustworthiness of the result.

After various attempts to deduce a correction proportionate to the secant of the declination, I have concluded that this is impracticable, and that any error due to the motion of the line of collimation in a small circle is thoroughly merged with the values of q.

The values of the correction q for each standard star being carefully charted, a curve was obtained by graphical means which represents the observations within the limit of probable error in the whole range of observations, excepting for the zone contained between 9° and 13° of north declination. For this region the distortion appears to have been so great, and the errors of observation so large, as to render the results less trustworthy than the rest.

Only after the work of reduction and the construction of the catalogue had been entirely completed in all other respects, was the investigation of the distortion within these limits resumed. The success of this special research has been greater than I had anticipated, and the results have now been modified to conform to the new determination.

For this special investigation the best attainable places were deduced for every star observed by D'AGELET within the above-named limits. For stars whose proper motion was found capable of approximate determination, this has been used to refer the right-ascensions to the date of D'AGELET'S observations. Some of the stars occur in ARGELANDER'S catalogue, but for the great majority of them PIAZZI, and BAILY'S reduction of LALANDE, furnished the places, and a comparison of these with later observations, the proper motion. All these adopted places were of course referred to the fundamental equinoctial points by special tables, originally deduced for the construction of the standard lists.

These residuals, when charted, soon made manifest the existence of two independent curves; one belonging to observations made by D'AGELET previous to some date in May, 1783, and the other, for which the corrections were decidedly smaller, holding good for subsequent observations. No note or memorandum exists by which the date may be indicated, but from internal evidence I am inclined to believe that it must have been on the 9th, and have accordingly assumed the change to have taken place on that day.

Observations before this date give reasonably accordant results, as also do those subsequent; and I cannot resist the strong conviction that D'AGELET, being aware of the great defect in the limb, employed some mechanical means on the 9th May to remedy it. The attempt was successful, in so far as the errors were decidedly reduced in magnitude within the region of their greatest influence; but was by no means successful in removing them, or indeed in diminishing them outside of the limits already named, for which they remain essentially the same throughout the period of D'AGELET'S observations.

The accompanying chart I. shows the value of q for different declinations; the dotted line

showing the values for dates after the 9th May, 1783. A glance will suffice to suggest the nature of the distortion, and it will be remarked that its maximum falls at precisely the same declination for each curve.

It seems evident that previous to D'AGELET'S first observations some severe blow must have fallen upon the instrument near the place of maximum distortion, bending and deflecting the whole limb. And that at or about the time already named, efforts were made to remedy the difficulty, although without dismounting the quadrant, and without a knowledge of the real magnitude and extent of the injury which had been incurred.

The sidereal times of all transits observed by D'AGELET have accordingly been corrected by the values given in the tables here appended, the argument of the principal table being the approximate zenith-distance as read from the limb.

In the second table, entitled "*Values of q between* + 9° *and* + 13°," the argument is the mean declination for 1800.0, since this was by far the least laborious form for construction; and the possible loss of accuracy incurred is quite small in comparison with the probable error of observations in this region of greatest distortion. The right-ascensions of all stars between the limits of 36° 0′ and 39° 40′ of zenith distance (corresponding nearly to the limits of + 12° 15′ and + 9° 11′ of declination) are affected by the special discussion.

Values of the correction q.

ζ	q	ζ	q	ζ	q	ζ	q	ζ	q
° '	s.	° '	s.	° '	s.	° '	s.	° '	s.
87 40	+ 3.53	14 0	+ 1.34	30 20	− 1.34	49 40	+ 0.66	66 0	+ 1.63
88 0	.50	20	.37	40	.37	50 0	.80	20	.60
20	.47	40	.38	31 0	.40	20	0.90	40	.56
40	.42	15 0	.39	20	.41	40	1.01	67 0	.52
89 0	.38	20	.40	40	.42	51 0	.10	20	.49
20	.33	40	.40	32 0	.44	20	.20	40	.46
40	.28	16 0	.40	20	.47	40	.29	68 0	.42
0 0	.22	20	.39	40	.48	52 0	.37	20	.40
20	.14	40	.39	33 0	.50	20	.44	40	.40
40	3.07	17 0	.38	20	.52	40	.53	69 0	.42
1 0	2.98	20	.36	40	.56	53 0	.60	20	.44
20	.89	40	.32	34 0	.58	20	.67	40	.47
40	.80	18 0	.29	20	.61	40	.71	70 0	.49
2 0	.70	20	.26	40	.63	54 0	.76	20	.53
20	.58	40	.21	35 0	.67	20	.79	40	.59
40	.46	19 0	.17	20	.71	40	.82	71 0	.65
3 0	.33	20	− .10	40	.77	55 0	.84	20	.72
20	.20	40	1.05	36 0	− 1.81	20	.86	40	.81
40	2.06	20 0	0.92	. . .	. .	40	.87	72 0	1.93
4 0	1.92	20	.79	39 40	− 1.73	56 0	.87	20	2.03
20	.80	40	.66	40 0	.60	20	.88	40	.15
40	.72	21 0	.50	20	.50	40	.88	73 0	.27
5 0	.66	20	.39	40	.41	57 0	.88	20	.40
20	.59	40	.27	41 0	.33	20	.87	40	.55
40	.54	22 0	.14	20	.27	40	.86	74 0	.70
6 0	.50	20	+ 0.03	40	.19	58 0	.84	20	2.90
20	.47	40	− 0.06	42 0	.11	20	.82	40	3.08
40	.44	23 0	.15	20	1.04	40	.80	75 0	.22
7 0	.41	20	.24	40	0.97	59 0	.79	20	.40
20	.39	40	.33	43 0	.90	20	.76	40	.58
40	.37	24 0	.42	20	.81	40	.73	76 0	.70
8 0	.36	20	.52	40	.72	60 0	.70	20	3.84
20	.33	40	.60	44 0	.63	20	.68	40	4.00
40	.32	25 0	.69	20	.55	40	.65	77 0	.10
9 0	.30	20	.76	40	.49	61 0	.63	20	.27
20	.29	40	.82	45 0	.41	20	.61	40	.41
40	.28	26 0	.88	20	.37	40	.60	78 0	.55
10 0	.28	20	.93	40	.31	62 0	.58	20	.68
20	.27	40	0.99	46 0	.26	20	.57	40	.80
40	.27	27 0	1.03	20	.20	40	.57	79 0	4.90
11 0	.27	20	.08	40	.13	63 0	.58	20	5.00
20	.27	40	.11	47 0	.08	20	.59	40	.08
40	.27	28 0	.16	20	− 0.01	40	.60	80 0	.15
12 0	.28	20	.19	40	+ 0.04	64 0	.61	20	.20
20	.30	40	.22	48 0	.12	20	.63	40	.25
40	.30	29 0	.24	20	.20	40	.64	81 0	.27
13 0	.31	20	.27	40	.30	65 0	.67	20	.29
20	.32	40	.30	49 0	.40	20	.67	40	.30
40	.33	30 0	.32	20	.53	40	.65	82 0	+ 5.30
14 0	+ 1.34	20	− 1.34	40	+ 0.66	66 0	+ 1.63	. . .	. .

Values of q between + 9° and + 13.°

δ	q Before May 9	q After May 9	δ	q Before May 9	q After May 9	δ	q Before May 9	q After May 9
° ′	s.	s.	° ′	s.	s.	° ′	s.	s.
+ 9 0	− 1.66	− 1.65	10 20	− 3.91	− 2.51	11 40	− 4.78	− 2.92
5	1.69	1.68	25	3.95	2.56	45	4.63	2.84
10	1.73	1.72	30	3.99	2.62	50	4.49	2.76
15	1.80	1.76	35	4.04	2.67	55	4.38	2.68
20	1.89	1.80	40	4.10	2.71	12 0	4.25	2.59
25	2.00	1.85	45	4.17	2.75	5	4.11	2.48
30	2.16	1.91	50	4.24	2.79	10	3.96	2.38
35	2.38	1.97	55	4.32	2.83	15	3.80	2.27
40	2.63	2.04	11 0	4.41	2.87	20	3.62	2.18
45	2.89	2.11	5	4.51	2.90	25	3.40	2.10
50	3.17	2.17	10	4.62	2.94	30	3.12	2.02
55	3.41	2.23	15	4.75	2.98	35	2.81	1.96
10 0	3.58	2.29	20	4.92	3.00	40	2.48	1.90
5	3.68	2.34	25	5.15	3.01	45	2.13	1.83
10	3.77	2.40	30	5.79	3.01	50	1.94	1.80
15	3.85	2.46	35	4.99	2.98	55	1.83	1.77
10 20	− 3.91	2.51	11 40	− 4.78	− 2.92	13 0	− 1.77	− 1.75

Finally, the computed and adopted values of n, $m + \Delta t$, and the clock-rate, for the epoch T, are here presented in tabular form.

On nine dates, easily recognized from the table of dates and stars, the number of standard stars observed was not sufficiently numerous to afford an adequate determination of m and n, which in these cases were subsequently deduced by employing, in place of standard stars, the mean resultant positions of such others as had been observed by D'AGELET on several occasions. For convenience and to avoid needless complication, the results of these determinations are incorporated in the preceding table, although they were not obtained till after the completion of the remainder of the work.

The constancy of the deviation n affords gratifying and encouraging evidence of the stability of the quadrant, and of the accuracy of the deduced correction q, large as it is.

Corrections for adjustment of Quadrant and Clock.

Date		T	n	Adopted n	No. of stars	Clock correction	Rate	Adopted rate
1783		h	s	s		m s	s	s
February	18	7	− 3.871	− 4.20	16	− 2 26.403	− 1.092	− 1.44
	19	10	4.403	4.15	5	2 27.632	1.775	1.44
	26	10	4.162	4.1	20	2 40.059	. . .	1.68
March	1	7	. . .	4.1	. .	2 43.80	1.555	1.68
	6	6	4.714	4.05	9	2 52.658	2.992	1.92
	9	6	4.0	4.0	2	3 1.635	1.046	2.40
	17	5½	3.301	4.0	6	3 10.004	0.710	0.96
	18	8	3.970	4.0	9	3 10.789	− 0.349	0.72
	21	8	4.029	4.0	9	3 11.836	+ 0.163	− 0.24
	29	9	4.108	4.0	5	3 10.530	0.218	+ 0.24
April	2	10	3.947	4.0	7	3 9.648	0.031	0.48
	3	12	3.332	4.0	11	3 9.614	0.669	0.48
	4	10	3.671	4.0	18	3 9.001	0.419	0.48
	5	8	4.096	4.0	11	3 8.617	0.944	0.72
	7	10	1.735	4.0	2	3 6.650	0.979	0.96
	8	9	4.722	3.95	5	3 5.712	1.592	1.20
	9	8	4.004	3.95	12	3 4.186	1.305	1.44
	12	11	3.8	3.9	2	3 0.107	0.672	0.96
	13	10	3.723	3.85	5	2 59.463	0.900	0.72
	14	10	3.928	3.85	5	2 58.563	0.685	0.72
	16	10	3.768	3.8	9	2 57.193	1.032	0.72
	18	14	3.055	3.78	2	2 54.960	0.749	0.96
	19	11	3.659	3.75	10	2 54.305	0.751	0.72
	21	14	1.093	3.7	2	2 52.710	0.540	0.48
	25	13	4.151	3.68	4	2 50.573	0.386	0.48
	26	10	3.655	3.67	6	2 50.234	1.099	0.72
	27	13	5.630	3.65	6	2 48.998	0.718	0.96
	28	13	3.932	3.63	19	2 48.280	1.095	0.96
	29	10	3.861	3.62	12	2 47.322	1.048	0.96
	30	9	− 3.491	3.6	13	2 46.318	1.327	1.20
May	1	12	+ 0.201	3.58	3	2 44.825	1.272	1.20
	2	11	− 3.687	3.6	3	2 43.606	1.157	1.20
	3	9	3.541	3.62	6	2 42.546	0.932	0.96
	4	14	3.6	3.63	3	2 41.420	0.715	0.72
	9	11	3.678	3.7	11	2 37.934	0.635	0.72
	12	14	2.671	3.93	2	2 35.950	. . .	0.48
	13	16	3.978	3.96	10	2 36.439	0.586	0.48
	15	13	3.993	3.98	11	2 35.341	0.845	0.72
	16	13	3.440	3.98	10	2 34.496	0.986	0.96
	17	13	2.095	3.98	3	2 33.510	0.523	0.72
	20	13	3.953	3.95	6	2 31.942	0.362	0.48
	29	16	3.018	3.75	5	2 28.638	0.600	0.48
	31	16	3.829	3.8	10	2 27.438	0.682	0.72
June	2	13	3.6	3.65	3	2 26.160	0.655	0.72
	3	14	3.509	3.6	4	2 25.477	. . .	0.72
July	5	16	3.7	3.75	5	2 10.392	1.264	1.20
	8	17	3.963	3.85	11	2 6.549	1.707	1.44
	9	19	4.454	3.9	12	2 4.700	1.198	1.44
	10	15	3.641	3.95	15	2 3.702	2.134	1.68
	12	20	4.045	4.0	11	1 58.990	1.699	1.92
	14	18	4.263	4.05	2	1 55.734	1.481	1.68
	19	21	4.2	4.1	26	1 48.144	1.344	1.44
	20	20	. . .	4.1	1	1 46.8	1.265	1.20
	23	20	4.258	4.1	8	1 43.005	0.874	1.20
	26	19	4.078	4.12	20	1 40.431	1.384	1.20
	27	22	4.179	4.14	7	1 38.874	1.412	1.44
	29	17	4.218	4.2	2	1 36.344	1.613	1.44
	30	20	. . .	4.2	1	1 34.530	. . .	1.68
August	17	23	3.136	4.22	3	1 15.257	0.982	0.96
	20	22	4.257	4.25	12	1 12.353	1.339	1.20
	21	23	3.428	4.28	4	1 10.957	1.118	1.44
September	2	19	4.507	4.4	4	0 57.723	0.757	0.72
	6	18	4.391	4.38	4	0 54.727	0.324	0.48
	7	19	4.805	4.4	2	0 54.390	Clock changed	0.48
	9	4	3.924	4.4	5	1 42.322	13.773	13.68
	15	23	4.465	4.3	8	− 0 22.556	13.544	13.44
	17	2	2.615	4.1	6	+ 0 6.225	+ 11.813	13.20
	25	6	− 3.879	− 3.95	4	+ 1 42.690		+ 11.76

Corrections for adjustment of Quadrant and Clock—Continued.

Date		T	n	Adopted n	No. of stars	Clock correction	Rate	Adopted rate
1784		h	s	s		m s	s	s
March	22	8	— 2.672	— 3.72	5	— 0 21.130	+ 2.517	+ 2.64
	23	6	3.811	3.68	6	0 18.823	2.256	2.40
	26	7	3.525	3.65	3	— 0 11.963	. . .	2.16
May	25	14	3.223	3.3	2	+ 0 29.175	3.986	3.60
June	5	10	3.620	3.35	2	— 0 47.630	4.257	4.08
	8	10	3.082	3.38	2	— 0 34.860	4.903	4.32
	16	10	3.381	3.42	7	+ 0 4.367	Clock changed	3.60
	21	4	3.753	3.5	2	— 0 38.910	3.312	3.36
July	4	5	3.446	3.6	3	+ 0 4.310	3.905	3.60
	14	12	3.750	3.66	2	— 0 15.500	. . .	3.84
September	7	21	3.204	3.3	8	0 19.965	3.372	3.84
	9	18	. . .	3.3	1	— 0 13.640	1.831	3.84
	14	20	3.505	3.26	6	+ 0 4.334	3.826	3.84
	15	22	3.275	3.25	5	0 8.478	4.059	4.08
	16	22	3.476	3.25	8	0 12.537	4.157	4.08
	17	20	3.979	3.23	6	0 16.348	3.288	3.36
	18	22	3.128	3.22	3	0 19.910	1.954	2.16
	20	6	3.956	3.2	3	0 24.470	2.931	2.64
	24	6	3.056	3.2	2	0 36.195	2.484	2.64
	26	5	. . .	3.18	1	0 41.060	2.387	2.40
	28	22	2.635	3.15	3	0 45.137	2.113	2.16
	30	2	3.0	3.2	6	0 49.714	2.447	2.16
October	1	20	2.944	3.18	5	0 51.549	2.227	2.16
	2	3	2.965	3.18	19	+ 0 54.426	2.319	2.16
	6	22	3.459	3.2	6	— 0 56.780	2.445	2.40
	8	2	4.632	3.22	3	0 51.687	2.336	2.40
	9	1	3.283	3.23	21	0 49.448	Clock changed	2.40
	12	7	3.955	3.32	3	2 52.613	2.227	2.16
	13	6	3.438	3.34	10	2 50.479	0.926	2.40
	14	19	. . .	3.36	1	2 49.050	2.416	2.40
	15	1	3.037	3.4	13	2 45.930	2.892	2.64
	16	20	3.440	3.42	5	2 43.640	. . .	2.88
November	17	23	4.271	3.86	2	1 53.510	1.826	1.92
	23	22	3.4	3.75	3	1 42.630	1.473	1.68
	28	20	3.346	3.55	5	1 35.386	0.704	1.44
December	28	21	2.841	3.2	2	1 14.230	. . .	0.72
1785								
March	14	7	4.227	3.6	4	1 43.402	2.243	2.16
	19	7	3.816	3.62	4	1 32.188	1.370	1.92
	21	7	3.214	3.65	9	1 29.447	1.567	1.44
	23	7	4.106	3.7	4	— 1 26.312	Clock changed	1.44
	30	10	7.500	3.85	2	+ 1 0.005	1.202	1.20
April	5	8	3.661	3.87	6	1 7.122	. . .	1.92
	9	12	. . .	3.9	.	1 15.250	. . .	2.16
	10	10	. . .	3.9	1	1 17.510	2.018	2.16
	11	9	— 1.330	3.9	3	1 19.444	2.666	2.40
	26	10	+ 1.748	3.9	2	1 59.550	+ 2.772	2.88
	29	11	. . .	— 3.9	1	+ 2 7.980		+ 3.12

§ 9. INSTRUMENTAL ERRORS AFFECTING THE DECLINATIONS.

The character of the deviations of the quadrant-limb from a plane naturally gave rise to the suspicion that so serious a distortion might also have affected the indications of zenith-distance; and a careful examination showed that this suspicion was not unfounded. By a process analogous to that employed for determining the deviations n and the correction q, a series of solutions by least squares yielded values for the equatorial point on each day, and for a correction q', constant for each star, but varying with the declination. The results of this investigation are given in the accompanying tables. The first, "*Corrections to equatorial point,*" contains the combined effect of the corrections for zenith-point and for error of latitude; and the second,

"*Values of q′*," indicates the systematic errors of the graduation, whether originally existing, or produced by the injury already spoken of. The latter corrections are delineated on the small chart II., accompanying this memoir, and their relation to those previously found for the right-ascensions is easily recognizable from the curve.

Corrections to equatorial point.

Date	Eq. point	Date	Eq. point	Date	Eq. point	Date	Eq. point
1783.	′ ″	1783.	′ ″	1783.	′ ″	1784.	′ ″
Feb. 18	+ 1 46.27	May 1	+ 1 49.53	Aug. 21	+ 1 49.40	Sept. 26	+ 1 43.00
19	44.24	2	47.83	Sept. 2	48.72	28	35.45
26	42.54	3	46.78	6	47.70	30	37.05
Mar. 1	44. 4	4	47.83	7	47.90	Oct. 1	39.27
6	47.13	9	48.57	9	47.88	2	38.65
9	46.30	12	47.15	15	50.17	6	41.80
17	47.45	13	46.81	17	49.37	8	39.47
18	48.30	15	45.49	25	+ 1 47.53	9	38.56
21	50.36	16	48.48			12	41.40
29	40.62	17	45.60	1784.		13	39.54
April 2	44.97	20	50.13	Mar. 22	+ 1 44.34	14	40.30
3	41.10	29	45.46	23	47.20	15	40.64
4	42.83	31	45.38	26	45.05	16	43.34
5	39.34	June 2	47.70	May 25	39.50	Nov. 17	43.00
7	34.80	3	46.95	June 5	44.25	23	40.65
8	41.02	July 5	45.32	8	43.25	28	40.05
9	41.35	8	47.00	16	43.07	Dec. 28	+ 1 40.20
12	38.90	9	45.95	21	43.40		
13	40.36	10	45.75	22	43.4	1785.	
14	40.72	12	44.09	July 4	42.13	Mar. 14	+ 1 38.95
16	39.67	14	47.35	14	39.40	19	34.38
18	42.45	19	46.42	Sept. 7	40.06	21	38.12
19	44.57	20	47.90	9	38.20	23	33.38
21	40.00	23	44.81	14	41.28	30	36.20
25	40.65	26	48.71	15	41.38	April 5	38.32
26	45.64	27	47.97	16	38.35	9	34.70
27	42.83	29	46.66	17	42.35	10	38.90
28	41.53	30	48.90	18	35.90	11	37.43
29	48.47	Aug. 17	46.47	20	41.87	26	40.70
30	+ 1 50.28	20	+ 1 48.68	24	+ 1 42.00	29	+ 1 40.80

Values of q′.

Decl.	q′	Decl.	q′	Decl.	q′	Decl.	q′	Decl.	q′	Decl.	q′
°	″	°	″	°	″	°	″	°	″	°	″
+ 50	+ 5.7	+ 35	+ 3.1	+ 20	− 1.1	+ 5	− 1.4	− 10	− 0.4	− 25	− 2.2
49	5.6	34	2.9	19	1.3	4	1.3	11	0.3	26	2.6
48	5.5	33	2.7	18	1.5	3	1.2	12	0.3	27	3.2
47	5.4	32	2.5	17	1.7	2	1.0	13	0.3	28	3.8
46	5.3	31	2.2	16	1.8	+ 1	0.9	14	0.4	29	4.6
45	5.1	30	1.9	15	1.9	0	0.8	15	0.4	30	5.5
44	4.9	29	1.6	14	2.0	− 1	0.7	16	0.5	31	6.4
43	4.7	28	1.3	13	2.0	2	0.7	17	0.5	32	7.3
42	4.5	27	1.0	12	2.0	3	0.6	18	0.6	33	8.2
41	4.3	26	0.7	11	1.9	4	0.6	19	0.7	34	9.1
40	4.1	25	+ 0.4	10	1.8	5	0.5	20	0.8	− 35	−10.2
39	3.9	24	0.0	9	1.8	6	0.5	21	1.0		
38	3.7	23	− 0.2	8	1.7	7	0.5	22	1.2		
37	3.5	22	0.5	7	1.6	8	0.4	23	1.5		
+ 36	+ 3.3	+ 21	− 0.8	+ 6	− 1.5	− 9	− 0.4	− 24	− 1.8		

It is manifest that these present reductions, being purely differential, can lead to no determination of the latitude of the place of observation. This has been used throughout as 48° 51′ 5″, and any error in this assumption is merged with such other corrections in declination as were constant for the date.

§ 10. OBSERVATIONS.

The crude observations printed by LALANDE are given in the present memoir in their reduced form, as already stated. The first column, entitled T, shows the clock-time of transit over the mean of the three wires; the second, entitled "Sidereal times," gives the sidereal time corresponding, or (for those dates when the clock was running at sidereal rate, but with very large error) the time T, increased or diminished by a constant amount representing the approximate correction. Next follow the values of the corrections $m + \Delta t$, $n \operatorname{tg} \delta$, q, from data presented in § 8 ; their sum when applied to T giving the apparent right-ascension.

Column 8 gives the approximate apparent declination obtained by subtracting the supposed latitude, 48° 51′ 5″, from the mean of the recorded zenith-distances, and is followed by the corrections for refraction and q'. The "equatorial point," or index-error to be used, is printed at the beginning of the observations for each date, and when summed with the other corrections and applied to $\zeta - \varphi$ yields the apparent declination. All these quantities have been computed in duplicate, and the errors of calculation must, I think, be very few.

The observations of sun, moon, and planets are omitted from the subsequent discussion. The data given render their reduction easy; but it has seemed hardly advisable to carry the computation farther at present. I was not without hopes of finding some observations of *Neptune*, but none have been discovered.

A very considerable number of marginal notes will be found accompanying the reduced observations. These relate in most instances to assumptions of errors in the original record. To decide what alterations are requisite, what warrantable, and what inadmissible, is always a matter of delicacy, and owing to the peculiar circumstances of the present case, has here been more difficult than usual. The existence of a large number of errors of press and pen being indisputable, I have felt justified in making a liberal use of probable conjectures, so long as the rule was strictly followed that no change, however slight, be made in the original, without a corresponding record on the same page. This rule does not apply to manifest errors in the column of the original entitled "reduction," where the readings of the division into 96 parts and its subdivisions are translated into the sexagesimal notation. These reductions have been made afresh, without use of the originals, which were found both imperfect and untrustworthy.

One remarkable kind of error is that where both the recorded readings of the limb agree in giving an erroneous result, precisely as though one reading had been erroneously made, and the other subsequently constructed to agree with it. Fortunately three-quarters of these cases are for stars which are well known, and whose names are given, and the others were fortunately observed on other dates, so that the assumptions made seem fully justified.

Among the cases of this sort are the following :

1783, April 3, 104 *Virginis.*	1783, April 25, 449 Mayer.
8, 34 *Leonis.*	25, T = 11*h.* 33*m.* 44*s.*
9, *a* *Persei.*	30, T = 9*h.* 17*m.* 20*s.*
13, T = 8*h.* 59*m.* 18*s.*	July 27, 51 *Piscium.*
14, 11 *Leonis.*	1784, Sept. 30, 79 *Pegasi.*
18, 3 *Libræ.*	Oct. 15, 140 *Tauri.*
19, T = 13*h.* 0*m.* 48*s.*	

In 23 instances observations have been found so discordant, and apparently so erroneous, that no plausible assumption could be made, so that it became necessary to reject the transit over one thread, or one reading of the zenith-distance. For 10 stars, whose zenith-distance was not observed, it was requisite in reducing to assume the declinations; but the close agreement of the resultant right-ascensions has seemed in every case to justify the assumption. All of these cases are fully specified in the notes. In a few cases, not exceeding six or eight, the discordance between the transits over different threads has left it uncertain which was erroneous ; and for these the mean has been used.

Throughout the reductions it has become manifest that those observations for which only the full minute was recorded are uncertain by two or three minutes, both in the transits and the zenith-distances. The failure to detect this usage at first has occasioned much fruitless labor.

§ 11. THE CATALOGUE.

The equinox, to which the mean places of the catalogue should be referred, was fixed as that of 1800.0, after much hesitation. The selection of this equinox was due to no want of appreciation of the importance of referring the mean places to the mean equator of a date near that at which the observations were made, but to the apparently greater advantages of the epoch adopted. Excepting the circumpolar stars of LALANDE, reduced by FEDORENKO to the mean equinox of 1790.0, all the observations of the last century, since the time of BRADLEY, have been reduced to this fundamental epoch; and the facility which the use of this epoch affords for comparing D'AGELET'S results with those of PIAZZI and LALANDE is too great to be lightly disregarded. The mean places of the catalogue are, therefore, referred to the equinox of 1800.0, but the actual date of every observation is given, and no correction for proper motion has in any instance been applied; so that the place recorded is always that at which the star was actually observed.

For reducing to the mean equinox, day-numbers were computed from the *A*, *B*, *C*, *D*, *E*, already given, (§ 7.) It may be well to record these also.

Constants for reducing stars from their apparent places to the mean equinox of 1800.

Date	G	H	Log g	Log h	Log i	f
1783	° '	° '				"
Feb. 14	181 35	306 44	2.5292	1.2858	n0.8273	—776.07
19	36	301 31	.5288	.2827	.8510	775.45
24	37	296 15	.5285	.2799	.8703	774.87
Mar. 1	181 37	290 56	2.5281	1.2775	n0.8854	774.31
6	38	285 35	.5278	.2755	.8968	773.77
11	38	280 12	.5275	.2741	.9048	773.25
16	39	274 49	.5273	.2733	.9094	772.73
21	39	269 25	.5270	.2730	.9106	772.23
26	39	264 2	.5267	.2734	.9088	771.74
31	39	258 41	.5264	.2743	.9034	771.25
April 5	181 38	253 23	2.5261	1.2759	n0.8949	770.73
10	38	248 9	.5258	.2779	.8831	770.20
15	37	242 59	.5255	.2803	.8678	769.64
20	36	237 53	.5252	.2830	.8484	769.06
25	36	232 52	.5249	.2859	.8251	768.45
30	35	227 56	.5245	.2890	.7972	767.80
May 5	181 34	223 5	2.5241	1.2922	n0.7643	767.11
10	33	218 18	.5237	.2954	.7252	766.40
15	32	213 36	.5232	.2983	.6789	765.67
20	31	208 59	.5228	.3011	.6240	764.91
25	31	204 25	.5223	.3036	.5579	764.11
30	30	199 55	.5219	.3058	.4758	763.28
					"	
June 4	181 29	195 28	2.5214	1.3076	— 2.35	762.45
9	29	191 3	.5209	.3090	1.70	761.60
14	29	186 39	.5204	.3099	1.03	760.73
19	29	182 17	.5199	.3104	— 0.36	759.85
24	29	177 56	.5194	.3104	+ 0.32	758.97
29	29	173 34	.5189	.3100	0.99	758.09
July 4	181 29	169 11	2.5184	1.3091	1.66	757.22
9	30	164 47	.5179	.3077	+ 2.31	756.37
14	30	160 21	.5174	.3060	0.4703	755.53
19	31	155 52	.5170	.3038	.5530	754.71
24	32	151 20	.5165	.3013	.6198	753.92
29	33	146 45	.5161	.2986	.6753	753.15
Aug. 3	181 34	142 5	2.5157	1.2956	0.7217	752.42
8	35	137 21	.5153	.2925	.7610	751.72
13	36	132 33	.5149	.2894	.7944	751.04
18	37	127 40	.5145	.2863	.8224	750.38
23	37	122 42	.5142	.2833	.8460	749.78
28	38	117 40	.5138	.2806	.8655	749.20
Sept. 2	181 39	112 33	2.5135	1.2782	0.8813	748.65
7	40	107 22	.5132	.2762	.8935	748.12
12	40	102 8	.5129	.2746	.9024	747.60
17	40	96 51	.5126	.2735	.9080	747.09
22	40	91 32	.5123	.2731	.9105	746.59
27	40	86 12	.5120	.2732	.9098	746.09
1784						
Mar. 21	181 39	269 25	2.4972	1.2730	n0.9106	721.10
26	39	264 2	.4969	.2734	.9088	720.62
31	39	258 41	.4966	.2743	.9034	720.13
April 5	181 38	253 23	2.4963	1.2759	n0.8949	719.61
10	37	248 9	.4960	.2779	.8831	719.07
15	37	242 59	.4957	.2803	.8678	718.52
20	36	237 53	.4953	.2830	.8484	717.95
25	35	232 52	.4949	.2859	.8251	717.33
30	34	227 56	.4945	.2890	.7972	716.68
May 5	181 33	223 5	2.4941	1.2922	n0.7643	716.02
10	31	218 18	.4937	.2954	.7252	715.33
15	30	213 36	.4933	.2983	.6789	—714.58

Date	G	H	Log g	Log h	Log i	f
1784	° '	° '				"
May 20	181 29	208 59	2.4928	1.3011	n0.6240	—713.81
25	28	204 25	.4923	.3036	.5579	713.04
30	27	199 55	.4918	.3058	.4758	712.25
					"	
June 4	181 27	195 28	2.4913	1.3076	— 2.35	711.42
9	26	191 3	.4908	.3090	1.70	710.56
14	26	186 39	.4903	.3099	1.03	709.70
19	25	182 17	.4897	.3104	— 0.36	708.83
24	25	177 56	.4891	.3104	+ 0.32	707.95
29	25	173 34	.4886	.3100	0.99	707.08
July 4	181 25	169 11	2.4881	1.3091	1.66	706.21
9	26	164 47	.4876	.3077	+ 2.31	705.35
14	26	160 21	.4871	.3060	0.4703	704.51
19	27	155 52	.4866	.3038	.5530	703.70
24	28	151 20	.4861	.3013	.6198	702.91
29	29	146 45	.4856	.2986	.6753	702.16
Aug. 3	181 29	142 5	2.4852	1.2956	0.7217	701.44
8	30	137 21	.4848	.2925	.7610	700.75
13	31	132 33	.4844	.2894	.7944	700.08
18	32	127 40	.4840	.2863	.8224	699.43
23	33	122 42	.4836	.2833	.8460	698.83
28	34	117 40	.4832	.2806	.8655	698.26
Sept. 2	181 34	112 33	2.4829	1.2782	.8813	697.70
7	35	107 22	.4826	.2762	.8935	697.17
12	35	102 8	.4822	.2746	.9024	696.67
17	35	96 51	.4819	.2735	.9080	696.19
22	35	91 32	.4816	.2731	.9105	695.69
27	35	86 12	.4813	.2732	.9098	695.19
Oct. 2	181 34	80 52	2.4810	1.2739	0.9060	694.69
7	34	75 32	.4807	.2752	.8988	694.19
12	33	70 14	.4804	.2770	.8882	693.66
17	32	64 57	.4800	.2793	.8740	693.11
22	31	59 43	.4796	.2819	.8559	692.54
27	30	54 33	.4793	.2849	.8335	691.95
Nov. 1	181 29	49 27	2.4789	1.2881	0.8064	691.32
6	28	44 24	.4784	.2914	.7738	690.66
11	27	39 24	.4780	.2948	.7349	689.95
16	25	34 29	.4775	.2978	.6883	689.20
21	24	29 37	.4770	.3007	.6322	688.44
26	23	24 48	.4765	.3034	.5638	687.64
Dec. 1	181 22	20 2	2.4760	1.3058	0.4782	686.80
6	21	15 19	.4754	.3077	.3670	685.93
					"	
11	20	10 37	.4749	.3091	+ 1.63	685.08
16	20	5 57	.4743	.3101	0.92	684.21
21	19	1 17	.4738	.3105	+ 0.20	683.31
26	19	356 37	.4732	.3104	— 0.52	682.40
31	20	351 57	.4726	.3097	— 1.24	681.49
1785						
Mar. 11	181 29	280 12	2.4663	1.2741	n0.9048	671.56
16	29	274 49	.4660	.2733	.9094	671.07
21	28	269 25	.4656	.2730	.9106	670.58
26	28	264 2	.4653	.2734	.9088	670.09
31	28	258 41	.4650	.2743	.9034	669.59
April 5	181 27	253 23	2.4647	1.2759	n0.8949	669.09
10	26	248 9	.4643	.2779	.8831	668.57
15	25	242 59	.4639	.2803	.8678	668.04
20	24	237 53	.4636	.2830	.8484	667.49
25	23	232 52	.4632	.2859	.8251	666.89
30	21	227 56	.4628	.2890	.7972	666.26

The arrangement of the catalogue requires little comment. After the running numbers for reference, which have been so arranged as to avoid separating different observations of the same star, the second column contains the names. These are not those recorded by D'AGELET, but are those obtained by identification of the stars. So far as possible, FLAMSTEED'S numbers and BAYER'S letters have been given; and in default of these, the reference-numbers from MAYER'S, BRADLEY'S (Bessel's) PIAZZI'S, and other standard catalogues, in order of seniority. But since an easy recognition, rather than a systematic nomenclature, has been aimed at, this rule may sometimes have been inadvertently violated. The references for FLAMSTEED'S, LACAILLE'S, and LALANDE'S observations are to their numbers in BAILY'S reductions; those for BESSEL'S and ARGELANDER'S zones, to the respective numbers in WEISSE'S and OELTZEN'S reductions, as is also indicated by the appended initials.

The magnitudes are those recorded by D'AGELET, and are omitted when not given by him. In the column "date" the year is indicated by its last digit, thus: 3, 4, 5, instead of 1783, 1784, 1785. The columns "reduction" contain the reduction from the apparent equinox of date to the mean equinox of 1800.0.

§ 12. ACCURACY OF THE RESULTS.

The catalogue contains 6,497 observations of 2,907 stars; so that the average number of observations for each star is about $2\frac{1}{4}$. Actually, 38 stars were observed more than ten times; 65 from seven to ten times, inclusive; 140 five or six times; 183 four times; 336 three times; 740 twice; and 1405 only once.

A comparison of the several positions of each star with each other, or with their mean, affords an opportunity for estimating the precision of the results; and from discussion of the several determinations of all those stars which have been observed more than three times we derive the following values for the mean deviations from the mean:

Mean error of a single observation.

Declinations		In α		In δ	
		Mean error	No. obs.	Mean error	No. obs.
°	°	s.		"	
+ 50 to	+ 45	± 0.313	77	± 2.94	82
45	40	.284	136	2.73	135
40	35	.275	142	2.08	145
35	30	.276	139	2.35	144
30	25	.314	319	1.99	315
25	20	.331	346	1.91	362
20	15	.310	348	2.20	375
15	13	.342	114	2.19	188
9	+ 5	.314	162	2,15	228
+ 5	0	.284	163	2.62	173
0	− 5	.388	100	2.43	111
− 5	10	.319	108	2.91	114
10	15	.255	35	2.41	36
15	20	.235	42	2.69	48
20	25	.493	22	3.43	25
25	30	.286	29	2.92	25
− 30	− 35	0.298	10	5.20	11

Of the 2907 stars of this catalogue, 274 occur in ARGELANDER'S *Positiones Mediæ;* and a comparison of their several places as here given, with those derived from ARGELANDER'S catalogue, using his precession and proper-motion excepting for our standard stars, but making the slight corrections requisite for reducing to PETERS'S nutation, furnishes the annexed results for the mean values of the difference of ARGELANDER — D'AGELET, after rejecting 12 cases in R. A., and 6 in Declination. The average discordances are the means of the differences, disregarding signs.

Comparison with Argelander's Positiones Mediæ.

Declinations	Δα	No. obs.	No stars	Δδ	No. obs.	No. stars	Average discordance In α	Average discordance In δ
° °	s.			″			s.	″
+ 50 to + 45	— 0.125	32	10	+ 1.17	38	11	0.185	2.35
45 40	+ 0.035	55	13	+ 0.94	57	14	0.155	1.87
40 35	+ 0.027	111	34	— 0.04	118	35	0.167	2.21
35 30	— 0.111	59	14	— 2.09	63	15	0.229	3.96
30 25	+ 0.079	123	30	+ 0.01	124	30	0.211	1.32
25 20	+ 0.181	106	30	+ 0.46	109	30	0.218	1.17
20 15	+ 0.023	94	32	— 0.09	103	32	0.167	1.53
15 13	— 0.103	37	10	+ 1.14	39	10	0.144	2.08
13 9	+ 0.089	38	10	+ 1.89	44	11	0.153	1.92
9 + 5	+ 0.005	104	15	+ 0.66	107	15	0.103	1.05
+ 5 0	+ 0.037	78	25	— 0.97	90	26	0.192	2.21
0 — 5	— 0.014	24	8	— 0.58	26	8	0.162	1.43
— 5 10	— 0.200	44	10	+ 1.64	49	10	0.287	3.20
10 15	— 0.009	29	4	— 1.13	30	4	0.081	1.15
15 20	— 0.097	50	13	— 0.85	52	13	0.165	2.18
— 20 — 25	— 0.172	6	4	+ 0.33	6	4	0.218	1.57

The resultant differences ARGELANDER — D'AGELET are—

$\Delta\,\alpha = +\,0^s.015$ by 262 stars; $\Delta\,\delta = -\,0''.070$ by 268 stars;
$= +\,0\ .013$ by 990 observations; $= +\,0\ .098$ by 1,055 observations.

Similarly a comparison of more than 1800 stars common to this catalogue and the second catalogue of PIAZZI has yielded the following results, after applying the proper-motion for seventeen years to the places of those few stars for which its existence and amount are well established, and rejecting 31 cases. Inasmuch as PIAZZI'S observations extended over the whole interval between 1792 and 1813, and the dates of the observations can only be deduced from the *Storia Celeste* by dint of great labor, this approximation has seemed to me sufficient; and although the residual discordances must somewhat exceed the true differences obtainable by the use of better values of the proper-motion than were at PIAZZI'S disposal, still the errors thus incurred will be very small, and for the most part susceptible of elimination.

It became manifest from the first that the differences of the two catalogues, especially in declination, varied greatly with the right-ascensions, and that the dividing lines between two distinct groups were not very remote from the equinoctial colures. In the appended table of comparisons I have assorted the differences PIAZZI — D'AGELET, for each zone of declination in two groups, bounded by even hours of right-ascension, arbitrarily selected. The discrepancies do not appear to be chiefly due to the apparent proper-motions occasioned by the motion of our system, although this *vera causa* must exert an influence; but they are apparently the result of intrinsic peculiarity of PIAZZI'S catalogue.

Comparison with Piazzi's new catalogue.

Declinations	α	No. obs.	No. stars	$\Delta\alpha$	$\Delta\delta$	α	No. obs.	No. stars	$\Delta\alpha$	$\Delta\delta$
° °	h.			s.	"	h.			s.	"
+ 50 to + 45	23 to 10	83	32	+ 0.171	+ 0.13	11 to 22	62	31	− 0.163	+ 2.15
45 40	0 11	98	49	+ 0.179	− 1.76	12 23	130	46	+ 0.090	+ 1.33
40 35	23 12	146	69	+ 0.241	− 3.36	13 22	189	71	+ 0.020	+ 0.96
35 30	0 12	155	64	+ 0.001	− 2.43	13 23	124	48	− 0.013	+ 1.86
30 25	0 12	297	109	+ 0.156	− 0.94	13 23	280	92	+ 0.158	+ 0.82
25 20	0 14	435	150	+ 0.266	− 1.59	15 23	190	73	+ 0.347	+ 1.53
20 15	0 14	478	171	+ 0.119	− 2.03	15 23	189	77	+ 0.098	+ 0.71
15 13	0 12	84	34	+ 0.050	− 1.38	13 23	79	28	− 0.009	+ 1.14
13 9	0 12	214	72	+ 0.151	+ 0.42	13 23	90	41	+ 0.288	+ 2.12
9 + 5	0 11	144	44	+ 0.143	− 0.06	12 23	130	47	+ 0.104	+ 1.71
+ 5 0	0 13	175	53	+ 0.018	− 1.57	14 23	123	72	+ 0.025	+ 0.95
0 − 5	0 14	127	42	+ 0.013	− 1.53	15 23	81	36	− 0.046	+ 1.65
− 5 − 10	1 15	150	48	− 0.105	− 1.10	16 0	36	18	+ 0.137	+ 2.58
10 15	0 14	61	23	− 0.114	− 0.37	15 23	30	16	+ 0.049	+ 1.25
15 20	22 12	35	6	− 0.029	+ 1.89	13 21	90	54	− 0.073	− 1.31
20 25	22 14	19	12	− 0.172	− 2.13	15 21	52	26	+ 0.092	+ 1.12
− 25 to − 30	21 6	18	5	+ 0.155	+ 1.55	7 20	70	31	− 0.088	+ 3.46

The resultant differences PIAZZI—D'AGELET are—

s.	s.
$\Delta\alpha = +0.119$	$\Delta\delta = -1.36$ by 2,719 observations in first group;
$= +0.121$	$= -1.42$ by 983 stars in first group;
$= +0.087$	$= +1.25$ by 1,945 observations in second group;
$= +0.079$	$= +1.22$ by 807 stars in second group;
$= +0.106$	$= -0.27$ by 4,664 observations in all;
$= +0.102$	$= -0.23$ by 1,790 stars in all.

Those stars which occur in PIAZZI'S catalogue have not been collated with LALANDE, but for the others an analogous comparison has been instituted with BAILY'S reductions of the *Histoire Celeste*. The results of this collation for about 850 stars, after applying a few proper-motions and rejecting the differences in right-ascension for 26, and in declinations for 14 stars, are as follows:

Comparison with Lalande.

Declinations	$\Delta\alpha$	No. obs.	No. stars	$\Delta\delta$	No. obs.	No. stars	Aver. discordance In α	Aver. discordance In δ
° °	s.			"			s.	"
+ 50 to + 45	− 0.251	68	40	+ 1.27	70	41	0.474	3.15
45 40	+ 0.006	173	87	+ 0.95	166	88	0.367	3.29
40 35	+ 0.028	156	86	+ 0.43	160	87	0.314	2.67
35 30	− 0.097	135	88	+ 0.69	146	97	0.328	2.79
30 25	− 0.093	148	89	+ 1.18	148	87	0.314	3.16
25 20	+ 0.029	201	116	+ 1.36	204	117	0.330	3.20
20 15	− 0.043	179	109	+ 1.69	178	110	0.294	3.54
15 13	− 0.049	35	26	+ 3.38	32	25	0.321	4.71
13 9	+ 0.170	63	45	+ 3.99	67	48	0.357	4.43
9 + 5	+ 0.068	40	30	+ 1.34	41	30	0.280	2.98
+ 5 0	− 0.098	67	43	+ 2.57	65	41	0.323	4.32
0 − 5	− 0.082	24	16	+ 1.26	23	15	0.327	3.83
− 5 10	− 0.026	18	15	− 1.09	18	15	0.244	5.42
10 15	− 0.113	15	13	+ 1.09	15	13	0.319	3.89
15 20	+ 0.039	11	10	− 2.78	12	10	0.223	6.14
20 25	− 0.177	7	6	− 2.44	8	7	0.311	4.72
− 25 to − 30	− 0.27	1	1	− 5.5	1	1	0.27	5.5

The resultant differences LALANDE—D'AGELET are—

$\Delta\,\alpha = -\,0^s.029$ by 820 stars; $\Delta\,\delta = +\,1''.29$ by 832 stars;
$= -\,0\ .031$ by 1,341 observations; $= +\,1\ .27$ by 1,354 observations.

There remain 206 stars, of which all but 16 have been identified as observed by other astronomers, viz: 110 in BESSEL'S zones; 14 in JOHNSON'S Radcliffe catalogue; 10 in ARGELANDER'S northern zones; 2 in ARGELANDER'S southern zones; 10 in RÜMKER'S catalogue; 33 in ARGELANDER'S *Durchmusterung;* 7 in LACAILLE only, and 4 in other places. The examination of the average differences between the positions of the present catalogue and those of the authorities above named has only been extended to these few stars, but gives entirely satisfactory results.

Thus the difference, WEISSE'S BESSEL—D'AGELET appears to be—

Between 0h. and 13h.	$\Delta\,\alpha = +\,0^s.15$	by 38 observations.		$\Delta\,\delta = -\,4''.19$	by 37 observations.	
13 and 23	$= \ 0\ .00$	60	"	$= -\,1\ .57$	64	"
Mean of all	$= +\,0\ .06$	98	"	$= -\,2\ .53$	101	"

The number of unrecognized stars amounted originally to 55; and in my uncertainty regarding them, I applied to my friend Mr. FERGUSON, Assistant Astronomer at the Washington Observatory, who in the kindest manner responded to my appeal, and together with Prof. ASAPH HALL, of the same institution, examined with the great equatorial of the observatory the regions in which D'AGELET'S observations placed each of these 55 stars. The aid thus rendered by these experienced observers has enabled me to make plausible assumptions for the greater part of the cases, and has reduced the numbers of stars now missing or discordant, by an amount not susceptible of explanation, to 16. A list of these will be given below, and notes concerning 12 others will be found at the end of the catalogue. These 28 stars are indicated by a dagger (†) against their respective numbers.

§ 13. GENERAL REMARKS.

Since the observations of D'AGELET are the earliest, excepting BRADLEY'S, of all the observations belonging to the more accurate class, we may reasonably rely upon the proper-motions deduced by comparing them with recent determinations. One of the earliest cases to attract attention was the well known "Argelander's star," or 1830 Groombridge, which was observed three times by D'AGELET, thus enabling us now to deduce a yet closer value for its proper-motion.* There are in the present catalogue about 1400 well recognized stars, which do not occur in the *Fundamenta Astronomiæ*, but have been observed in recent years, and for the most of these the proper-motions hence deduced promise to be more trustworthy than any others now attainable, unless some large number of modern observations of high character permits the application of the method of least squares.

The differential character of the reduction does not militate with this view, inasmuch as the places and proper-motions of the standard stars on which the determination rests may apparently be relied on to a degree far within the mean error of a quadrant-observation in 1783. A gratifying indication of the general trustworthiness of the catalogue is afforded by some of the dates already mentioned, on which the number of standard stars proved inadequate

* The most probable value which I have found is $+\,0^s.3439$ in α, and $-\,5''.7923$ in δ; the mean place of the star for 1800.0 being $11^h.\ 41^m.\ 24^s.20$, $+\,39°\ 9'\ 10''.47$.

for the determination of Δt and n, but on which several stars of ARGELANDER'S catalogue occur. The clock-error and quadrant-deviation being calculated independently by means of ARGELANDER'S stars, and by means of positions derived from stars observed by D'AGELET on other dates, the two determinations agreed so closely that it was entirely insignificant which should be used, the differences being only in the second decimal. For the sake of consistency the results from our catalogue have been employed.

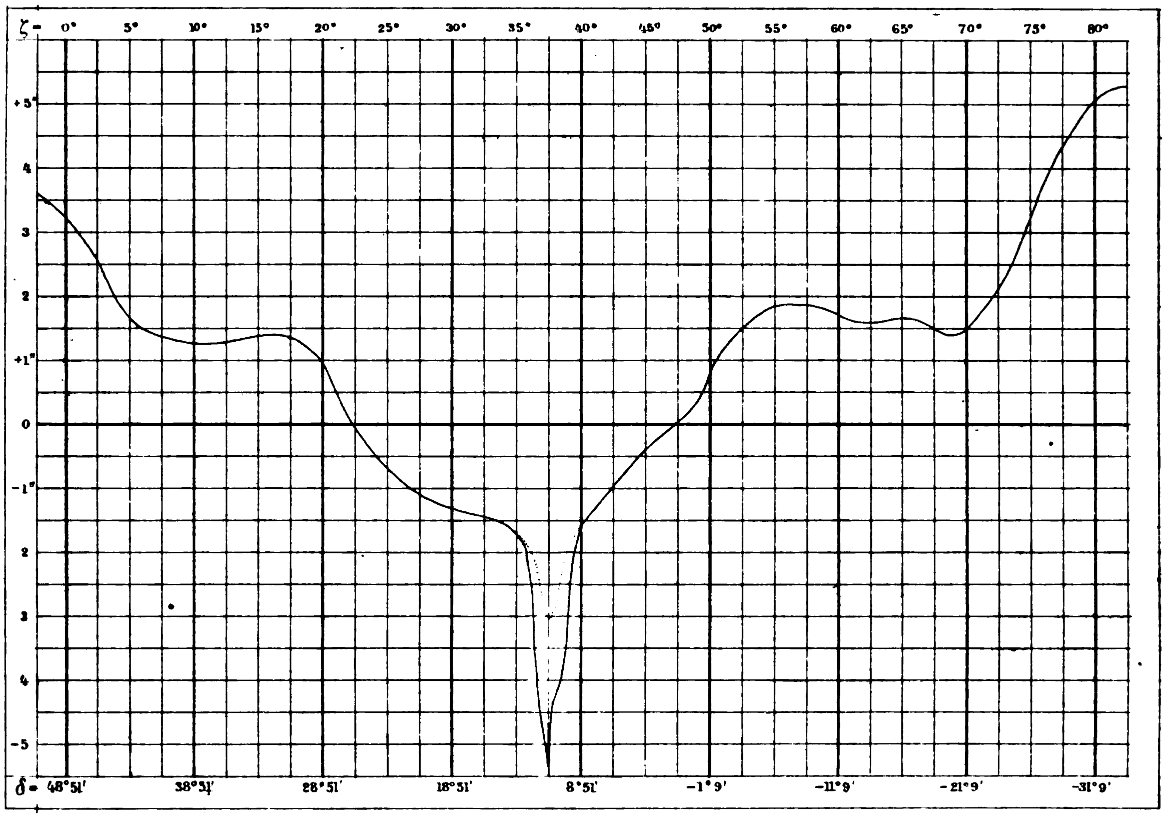
In concluding these introductory remarks, I will place together the positions of those stars which have defied attempts at identification, or whose discordances are too great to be lightly disposed of by a conjecture. Among them are, not improbably, places of planets and of variable stars, but the greater part of them must, I am inclined to believe, owe their place in the catalogue to some error in the original record.

No.	Mag.	α 1800.0			δ 1800.0			Date	
		h.	m.	s.	°	′	″		
710	6	3	56	53.7	+ 21	50	30.1	1784, October	2
1078	. .	6	23	54.6	+ 22	15	46.9	1783, March	17
1615	7	8	41	50.0	+ 6	4	58.3	1785, March	21
1798	. .	9	21	18.9	+ 15	25	36.2	1785, March	21
1893	6	9	38	38.9	+ 25	30	7.8	1783, Feb.	26
1967	8	9	52	58.3	— 9	9	5.6	1783, April	14
2733	6.7	11	41	18.4	+ 9	9	55.9	1785, April	10
2985	. .	12	23	20.5	+ 11	46	59.7	1783, May	2
3174	6	12	59	7.5	— 15	26	44.2	1783, May	17
3239	8	13	13	26.6	— 13	21	17.0	1783, April	29
4290	6	16	19	42.4	— 3	18	38.0	1783, May	31
4604	9	17	50	22.4	+ 37	49	47.6	1783, July	29
5364	. .	20	6	26.2	+ 1	26	....	1784, Sept.	7
5593	6	20	40	46.3	+ 26	21	17.8	1784, Sept.	7
5594	8.9	20	41	16.3	+ 39	40	41.0	1783, July	30
6052	7.8	22	9	6.5	+ 25	21	57.3	1783, Sept.	15

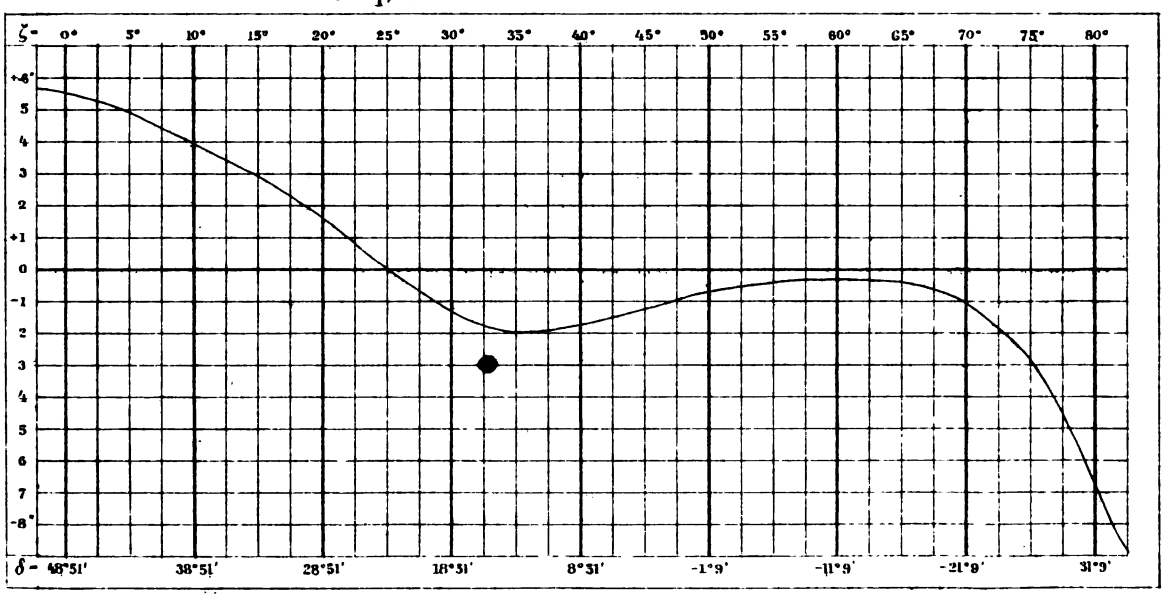
In addition to the motives already mentioned as having prompted me to undertake this reduction and catalogue, an especial incentive was found in the experience which it would afford and make available for a much more extended work which has long been a cherished project, the recomputation of PIAZZI'S observations, and the formation from them of a new catalogue. This is an enterprise far too extensive for the powers of a private individual, but I look forward with much hopefulness to the possibility of obtaining the requisite means at some future time. The elaborate publication of the originals by Prof. LITTROW, in the annals of the Vienna Observatory, will much facilitate this undertaking, and I have already completed the preliminary tables to a considerable extent. It is upon the observations of PIAZZI that the reduction of LALANDE'S zones is based, and to them the astronomer of to-day is continually compelled to resort for his knowledge of a large proportion of the "landmarks of the heavens." No astronomical labor promises richer usefulness than this; and if the great work of reducing anew the observations of BRADLEY be carried out by a combination of the astronomers of Europe, as is now proposed, nothing seems more appropriate for the astronomers of the New World than to render a similar service by a new reduction of the *Storia Celeste*.

REDUCTION OF D'AGELET'S OBSERVATIONS.

Values of q, the correction to observed time of transit.



Values of q', the correction to observed declination.



REDUCTION

OF

D'AGELET'S OBSERVATIONS.

5

REDUCTION OF D'AGELET'S OBSERVATIONS.

1783 FEBRUARY 18 Zero corr. = + 1′ 46″. 3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
α Persei . .	2	5 17 16.0	3 11 23.36	— 2 26.17	— 4.84	+ 3.26	+ 49 2 44.8	— 0 0.2	+ 5.6
α Tauri . .	1	6 31 39.5	4 25 58.58	2 26.23	1.21	— 1.49	+ 16 2 24.6	38.5	— 1.8
11 γ¹ Orionis . .	5	7 0 16.2	54 40.50	2 26.27	1.13	— 1.57	+ 15 4 7.2	40.0	— 1.9
104 m Tauri . .	6	7 2 43.8	4 57 9.16	2 26.28	1.39	— 1.36	+ 18 19 9.2	35.3	— 1.5
a)	7.8	7 8 35.3	5 3 1.00	2 26.28	4.30	+ 2.27			
Capella .	1	8 45.3	3 10.97	2 26.28	— 4.30	+ 2.27	+ 45 43 48.3	0 3.2	+ 5.2
	7	11 7.1	5 33.16	2 26.29	+ 0.62	+ 1.87	— 8 25 16.3	1 32.8	— 0.5
Rigel . .		12 6.0	6 32.22	2 26.29	+ 0.62	+ 1.87	— 8 28 13.3	1 33.0	— 0.5
β Tauri . .		20 36.0	15 3.62	2 26.30	— 2.27	+ 0.73	+ 28 23 4.5	0 22.3	+ 1.4
24 γ Orionis . .	2	21 31.2	15 58.97	2 26.30	0.45	— 0.96	+ 6 7 26.0	55.2	— 1.5
25 χ Aurigæ . .		26 37.8	21 6.41	2 26.31	— 2.62	+ 1.38	+ 31 59 24.9	0 18.1	+ 2.5
11 α Leporis . .		31 5.2	25 34.54	2 26.31	+ 1.36	+ 1.54	— 17 58 57.0	2 18.8	— 0.6
50 ζ Orionis . .		37 44.7	32 15.14	2 26.31	0.15	+ 1.08	+ 2 4 52.2	1 13.7	— 0.7
13 γ¹Leporis . .		43 18.3	37 49.65	2 26.32	+ 1.74	+ 1.72	— 22 30 45.9	2 55.5	— 1.4
b) 58 α Orionis . .		7 51 22.2	5 45 54.87	2 26.33	— 0.54	— 1.23	+ 7 20 14.1	0 52.8	— 1.6
68 Orionis . .		8 7 5.2	6 1 40.46	2 26.34	1.51	— 1.24	+ 19 48 10.4	33.2	— 1.1
7 η Geminorum .		9 41.1	4 16.78	2 26.35	1.74	— 0.93	+ 22 31 57.2	29.6	— 0.3
10 " . .	7.8	13 33.9	8 10.22	2 26.35	1.84	— 0.74	+ 23 38 55.0	28.2	— 0.0
13 μ		17 43.2	12 20.20	2 26.35	1.74	— 0.93	+ 22 35 17.2	29.6	— 0.3
c) 184 ξ LC. . . .	6.7	20 11.0	14 48.40	2 26.36	1.83	— 0.76	+ 23 31 29.5	28.4	— 0.0
Uranus . .		23 4.5	17 42.38	2 26.36	1.84	— 0.72	+ 23 42 55.9	28.1	— 0.0
		32 30.0	27 9.43	2 26.37	1.85	— 0.72	+ 23 44 56.5	28.0	— 0.0
24 γ Geminorum .							+ 16 33 3.5	37.8	— 1.7
26 " . .		37 36.3	32 16.57	2 26:38	1.35	— 1.40	+ 17 49 22.4	36.1	— 1.5
27 ε " . .		38 23.7	33 4.10	2 26.38	— 1.98	— 0.31	+ 25 18 27.4	0 26.1	+ 0.5
Sirius . .		8 43 18.3	6 37 59.51	2 26.38	+ 1.24	+ 1.67	— 16 25 30.7	2 9.5	— 0.5
d) 43 γ Cancri . .		10 38 12.8	8 33 12.88	2 26.50	— 1.71	— 0.99	+ 22 12 52.8	0 30.1	— 0.5
54 " . .		46 25.0	41 26.43	2 26.50	1.21	— 1.48	+ 16 7 28.2	38.5	— 1.8
16 ζ " . .		51 22.0	46 24.24	2 26.51	0.50	— 1.08	+ 6 44 44.5	54.1	— 1.6
65 α² " . .		10 54 3.9	49 6.59	2 26.51	0.94	— 2.41	+ 12 40 10.0	43.8	— 2.0
1 κ Leonis . .		11 19 22.0	9 14 28.84	2 26.54	2.15	+ 0.24	+ 27 4 55.1	24.0	+ 1.0
2 ω " . .		24 13.6	19 21.24	2 26.55	0.74	— 3.55	+ 9 58 29.8	48.4	— 1.8
5 ξ " . .		27 38.9	22 47.10	2 26.55	0.91	— 3.81	+ 12 13 56.6	44.6	— 2.0
10 " . .		33 5.5	28 14.60	2 26.55	0.57	— 1.32	+ 7 47 0.6	52.1	— 1.7
14 ο " . .		36 56.7	32 6.43	2 26.55	0.81	— 4.26	+ 10 51 12.0	46.9	— 1.9
17 ε " . .		40 50.1	36 0.47	2 26.56	1.94	— 0.46	+ 24 44 29.5	26.9	+ 0.3
e) 24 μ " . .		47 41.7	42 53.20	2 26.56	2.14	+ 0.21	+ 26 59 43.6	23.8	+ 1.0
f)	8.9	52 8.4	47 20.63	2 26.57	1.18	— 1.51	+ 15 44 1.9	39.2	— 1.8
29 π " . .		11 56 1.4	51 14.26	2 26.57	0.67	— 1.71	+ 9 3 38.9	49.9	— 1.8
g) 30 η " . .		12 2 45.8	57 59.78	2 26.58	1.35	— 1.40	+ 17 47 36.9	36.2	— 1.5
Regulus . .		4 4.8	9 59 18.99	2 26.59	— 0.97	— 1.79	+ 13 0 5.9	0 43.4	— 2.0
18 Sextantis .		7 19.5	10 2 34.22	2 26.59	+ 0.54	+ 1.88	— 7 21 37.0	1 29.6	— 0.5
22 " . .		14 1.3	9 17.12	2 26.59	0.52	+ 1.87	— 6 59 47.9	1 28.3	— 0.5
	7.8	22 33.3	17 50.52	2 26.60	+ 0.39	+ 1.78	— 5 20 12.3	1 23.1	— 0.5
	6.7	26 21.8	21 39.65	2 26.60	— 0.03	+ 0.22	+ 0 27 29.0	1 7.5	— 0.8
47 ρ Leonis . .		28 37.1	23 55.32	2 26.61	— 0.77	— 3.95	+ 10 23 59.2	0 47.8	— 1.8
2 φ¹Hydræ . .		35 7.3	30 26.58	2 26.61	+ 1.19	+ 1.64	— 15 45 2.0	2 6.0	— 0.5
52 κ Leonis . .		42 5.3	37 25.73	3 26.62	— 1.15	— 1.55	+ 15 18 56.9	0 39.9	— 1.9
53 l " . .		45 3.3	40 24.22	2 26.62	0.87	— 4.75	+ 11 40 12.0	0 45.6	— 2.0
55 " . .	7	51 38.8	47 0.80	2 26.63	0.14	— 0.08	+ 1 52 37.5	1 4.2	— 1.0
58 d " . .		12 56 27.4	51 50.19	2 26.63	— 0.35	— 0.61	+ 4 45 47.4	0 58.1	— 1.4
h) 61 " . .	8	13 0 43.3	56 6.79	2 26.63	+ 0.10	+ 0.86	— 1 21 16.4	1 12.0	— 0.7
65 " . .		2 54.4	10 58 18.25	2 26.64	— 0.23	— 0.30	+ 3 7 0.4	1 1.6	— 1.2
i) 69 " . .		9 42.0	11 5 6.97	2 26.64	0.08	+ 0.06	+ 1 5 43.4	1 6.1	— 0.9
73 n " . .		11 35.7	7 0.98	2 26.64	1.08	— 1.61	+ 14 28 7.7	0 41.2	— 2.0
77 σ " . .		17 0.3	12 26.47	2 26.65	0.53	— 1.19	— 7 11 57.6	0 53.4	— 1.6
79 " . .							+ 2 35 1.8	1 2.7	— 1.1
84 τ " . .		23 48.4	19 15.68	2 26.66	0.30	— 0.45	+ 4 2 3.6	0 59.6	— 1.3
89 " . .		30 16.2	25 44.55	2 26.67	0.31	— 0.50	+ 4 14 55.8	59.2	— 1.3
1 ω Virginis . .		34 17.5	29 46.49	2 26.67	0.69	— 1.89	+ 9 18 57.4	0 49.7	— 1.8
5 β " . .		13 46 21.8	11 41 52.79	— 2 26.68	— 0.22	— 0.28	+ 2 58 21.7	— 1 2.0	— 1.2

a ζ assumed as that of a star 8′ from Capella.
b T. III assumed as 29.5s.; not 39.5s.
c T. III assumed as 35s.; not 15s.
d ζ assumed as 26° 38′ 13″; not 26° 38′ 43″.
e ζ assumed as 21° 51′; not 21° 50′.
f ζ assumed as 33°; not 35°.
g Div. assumed as 33; not 35.
h T. I assumed as 0m. 43.5s.; not 0m. 53.5s.
i Min. assumed as 9; not 3.

1783 FEBRUARY 19 Zero corr. = + 1′ 44″.2.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
58 *d* Leonis . .		12 52 32.0	10 51 50.71	− 2 27.68	− 0.34	− 0.61	+ 4 45 47.6	− 0 58.0	− 1.4
a) 61 " . .	9.10	56 48.1	56 7.51	2 27.69	+ 0.10	+ 0.86	− 1 21 00.0	1 11.9	− 0.7
b) 65 " . .		12 59 0.0	58 19.77	2 27.70	− 0.22	− 0.30	+ 3 6 59.2	1 1.4	− 1.2
69 " . .		13 5 47.2	11 5 8.08	2 27.70	0.08	+ 0.06	+ 1 5 43.9	1 6.0	− 0.9
70 θ " . .							+ 16 35 32.9	0 37.9	− 1.7
73 *n* " . .		7 40.7	7 1.89	2 27.70	1.07	− 1.61	+ 14 28 9.1	41.1	− 2.0
77 σ " .		13 5.0	12 27.06	2 27.71	0.52	− 1.19	+ 7 11 58.4	0 53.2	− 1.6
79 " . .		16 0.6	15 23.16	2 27.71	0.18	− 0.21	+ 2 35 0.2	1 2.6	− 1.1
84 τ " . .		19 53.3	19 16.50	2 27.71	0.29	− 0.45	+ 4 2 4.2	0 59.5	− 1.3
c) 89 " . .		26 21.3	25 45.56	2 27.72	0.31	− 0.50	+ 4 14 57.5	59.1	− 1.3
d) 1 ω Virginis . .		30 22.2	29 47.12	2 27.72	0.68	− 1.89	+ 9 18 59.4	49.6	− 1.8
4 ξ² " . .		39 50.2	39 16.68	2 27.73	0.69	− 2.06	+ 9 25 56.9	0 49.3	− 1.8
5 β " . .		42 26.2	41 53.10	2 27.73	0.21	− 0.28	+ 2 58 23.0	1 1.9	− 1.2
e) 6 *A* " . .		46 58.2	46 25.84	2 27.74	0.70	− 2.55	+ 9 37 56.4	0 49.0	− 1.8
7 *b* " . .		51 52.0	51 20.45	2 27.74	0.34	− 0.63	+ 4 50 56.6	57.9	− 1.4
9 *o* " . .		13 57 12.7	11 56 42.03	2 27.75	0.72	− 3.44	+ 9 55 14.1	0 48.5	− 1.8
10 *r* " . .	7	14 1 34.1	12 1 4.14	2 27.75	0.22	− 0.30	+ 3 6 13.2	1 1.6	− 1.2
11 *s* " . .	7	2 0.6	1 30.71	2 27.75	0.51	− 1.15	+ 6 59 52.6	0 53.6	− 1.6
	9	5 45.0	5 15.72	2 27.76	0.04	+ 0.20	+ 0 33 13.4	1 7.2	− 0.9
13 *n* " . .		10 30.8	10 2.32	2 27.76	0.03	+ 0.24	+ 0 24 27.2	1 7.5	− 0.8
15 η " . .		11 45.8	11 17.52	2 27.76	− 0.04	+ 0.20	+ 0 31 40.2	1 7.2	− 0.9
21 *q* " . .		25 28.4	25 2.37	2 27.78	+ 0.60	+ 1.88	− 8 15 31.0	1 32.4	− 0.5
f) 25 *f* " . .		28 30.1	28 4.57	2 27.78	0.33	+ 1.69	− 4 38 31.8	1 20.8	− 0.5
29 γ " . .		33 33.4	33 8.70	2 27.78	0.02	+ 0.45	− 0 16 8.2	1 9.1	− 0.8
38 " . .		44 56.0	44 33.17	2 27.79	+ 0.17	+ 1.17	− 2 22 53.8	1 14.5	− 0.7
43 δ " . .		47 33.0	47 10.60	2 27.80	− 0.33	− 0.56	+ 4 33 50.9	0 58.4	− 1.4
44 κ " . .		51 19.1	50 57.32	2 27.80	0.19	+ 1.24	− 2 38 53.5	1 15.2	− 0.7
49 *G* " . .		14 59 20.2	12 58 59.74	2 27.81	+ 0.70	+ 1.81	− 9 34 50.2	1 37.4	− 0.4
51 θ " . .		15 1 31.1	13 1 11.00	2 27.81	0.33	+ 1.64	− 4 23 7.2	1 20.1	− 0.6
	8	12 34.9	12 16.62	2 27.82	0.65	+ 1.86	− 8 51 55.0	1 34.7	− 0.4
67 α " . .		15 16 31.1	13 16 13.46	− 2 27.83	+ 1.43	+ 1.79	− 10 1 38.3	− 1 39.0	− 0.7

1783 FEBRUARY 26 Zero corr. = + 1′ 42″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
58 α Orionis . .		7 20 8.2	5 46 8.17	− 2 39.75	− 0.53	− 1.23	+ 7 20 13.2	− 0 52.5	− 1.6
1 *H* Geminorum .		27 38.2	53 39.40	2 39.77	1.76	− 0.81	+ 23 14 16.0	28.5	− 0.2
235 Mayer . .	7.8	33 9.2	5 59 11.31	2 39.78	1.67	− 0.99	+ 22 11 18.6	30.1	− 0.5
7 η Geminorum .		38 27.5	6 4 30.48	2 39.78	1.69	− 0.93	+ 22 31 58.8	29.4	− 0.3
12 " . .	7	42 50.8	8 54.50	2 39.79	1.77	− 0.80	+ 23 19 25.6	28.4	− 0.2
13 μ " . .		46 29.3	12 33.60	2 39.80	1.70	− 0.92	+ 22 35 17.2	29.4	− 0.3
14 " . .	7.8	49 20.7	15 25.47	2 39.80	1.63	− 1.05	+ 21 43 43.6	30.5	− 0.6
Uranus . .		51 20.0	17 25.10	2 39.80	1.80	− 0.72	+ 23 43 7.0	27.9	0.0
g) 852 Mayer . .	7.8	7 57 41.2	23 48.38	2 39.81	1.68	− 0.98	+ 22 15 24.0	29.8	− 0.4
24 γ Geminorum .		8 1 47.3	27 54.11	2 39.81	1.22	− 1.47	+ 16 33 2.4	37.6	− 1.7
h) 261 Mayer . .	7.8	5 27.3	31 34.71	2 39.82	− 1.22	− 1.47	+ 16 33 56.1	0 37.6	− 1.7
Sirius . .		12 4.7	38 13.20	2 39.83	+ 1.21	+ 1.67	− 16 25 29.7	2 8.3	− 0.5
36 *d* Geminorum .		15 7.2	41 16.20	2 39.83	− 1.65	− 1.01	+ 21 58 50.0	0 30.1	− 0.5
	8	20 36.3	46 46.20	2 39.83	0.93	− 1.94	+ 12 49 36.0	43.2	− 2.0
	7.8	23 56.5	50 6.95	2 39.84	1.19	− 1.48	+ 16 12 20.0	38.1	− 1.8
i) 41 " . .	7	24 20.5	50 31.02	2 39.84	1.20	− 1.48	+ 16 20 42.7	37.9	− 1.8
44 ω² " . .	7.8	28 46.8	54 58.05	2 39.84	1.73	− 0.87	+ 22 55 31.6	28.9	− 0.2
j)	7.8	31 59.8	6 58 11.58	2 39.85	2.42	+ 1.26	+ 30 27 9.8	19.9	+ 2.1
46 τ " . .		33 49.3	7 0 1.38	2 39.85	2.42	+ 1.26	+ 30 33 40.0	19.7	+ 2.1
51 " . .		37 25.7	3 38.37	2 39.85	1.21	− 1.47	+ 16 29 35.9	37.7	− 1.8
54 λ " . .		42 7.5	8 20.94	2 39.86	1.25	− 1.44	+ 16 53 56.6	37.2	− 1.7
55 δ " . .		43 39.4	9 53.09	2 39.86	1.68	− 0.96	+ 22 20 42.0	29.6	− 0.5
57 *A* " . .		46 43.4	12 57.59	2 39.87	1.95	− 0.26	+ 25 25 48.4	25.8	+ 0.5
61 γ " . .		50 37.3	16 52.13	2 39.87	1.55	− 1.17	+ 20 39 21.5	31.9	− 0.9
65 *b*³ " . .		52 46.2	19 1.38	2 39.87	2.21	+ 0.72	+ 28 19 30.5	22.3	+ 1.4
	8	8 53 38.0	7 19 53.32	− 2 39.87	− 2.21	+ 0.72	+ 28 19 35.0	− 0 22.3	+ 1.4

a T. II assumed as 56m. 48s.; not 56m. 58s.
b Hour assumed as 12; not 13
c Transits over Ts. II and III assumed to have been recorded over Ts. I and II.
d ζ assumed as 39° 32′; not 39° 22′.
e ζ assumed as 39° 13′ 9″; not 39° 13′ 39″.
f Div. assumed as 57; not 574.
g T. I assumed as recorded over T. II; reading under T. I rejected.
h ζ assumed as 32° 17′ 11″; not 32° 17′ 41″.
i T. II assumed as 20s.; not 30s.
j ζ assumed as 18° 23″; not 18° 18″.

1783 FEBRUARY 26—Continued Zero corr. = + 1′ 42″.5.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	$\zeta-\phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
66 a "		8 57 10.2	7 23 26.10	− 2 39.88	− 2.59	+ 1.39	+ 32 19 26.5	+ 0 17.7	+ 2.5
69 ν "		8 58 59.0	25 15.21	2 39.88	2.12	+ 0.33	+ 27 20 25.3	23.5	+ 1.1
Procyon		9 4 21.5	30 38.59	2 39.89	0.41	− 0.87	+ 5 45 14.5	55.6	− 1.5
Companion		5 0.9	31 18.10	2 39.89					...
78 β Geminorum		8 26.2	34 43.96	2 39.89	2.23	+ 0.79	+ 28 30 44.6	22.1	+ 1.5
83 φ "		16 36.1	42 55.20	2 39.90	2.11	+ 0.32	+ 27 17 21.5	23.6	+ 1.1
	8.9	16 50.7	43 9.84	2 39.90	2.09	+ 0.24	+ 27 5 53.0	23.8	+ 1.0
1 Cancri	7	21 3.8	47 23.63	2 39.90	1.20	− 1.48	+ 16 20 14.6	38.0	− 1.8
2 ω¹ "		24 9.7	50 30.04	2 39.91	1.99	− 0.11	+ 25 57 0.8	25.2	+ 0.7
6 "		26 32.4	52 53.13	2 39.91	2.21	+ 0.73	+ 28 21 53.5	22.3	+ 1.4
a) 9 μ¹ "		29 47.8	56 9.05	2 39.92	1.76	− 0.82	+ 23 13 15.4	28.6	− 0.2
10 μ² "		31 21.0	7 57 42.52	2 39.92	1.67	− 0.99	+ 22 10 38.6	29.9	− 0.5
14 ψ² "		33 43.3	8 0 5.22	2 39.92	2.01	− 0.07	+ 26 7 44.9	24.9	+ 0.7
16 ζ "		36 7.2	2 29.52	2 39.92	1.35	− 1.37	+ 18 16 9.6	35.2	− 1.5
329 Mayer	8	38 6.7	4 29.35	2 39.92	1.36	− 1.37	+ 18 17 55.2	35.2	− 1.5
17 β Cancri		9 41 6.5	8 7 29.64	2 39.93	0.71	− 3.17	+ 9 49 33.8	48.5	− 1.8
10 Leonis		11 1 52.0	9 28 28.41	2 40.02	0.56	− 1.31	+ 7 47 0.1	51.8	− 1.7
	9	4 44.9	31 21.77	2 40.03	0.67	− 1.80	+ 9 14 4.0	49.4	− 1.8
14 o "							+ 10 51 12.0	46.6	− 1.9
	7	9 1.2	35 38 77	2 40.03	1.86	− 0.54	+ 24 26 31.3	27.1	− 0.1
17 ε "		9 36.4	36 14.07	2 40.03	1.89	− 0.46	+ 24 44 29.2	26.7	+ 0.3
	6.7	11 8.4	37 46.32	2 40.03	1.88	− 0.50	+ 24 37 9.0	26.8	+ 0.3
	6	13 46.5	40 24.85	2 40.04	1.96	− 0.23	+ 25 33 25.2	25.7	+ 0.6
21 "	6	15 14.1	41 52.69	2 40.04	0.93	− 1.93	+ 12 49 47.1	43.4	− 2.0
	7.8	73 9.0	49 48.89	2 40.05	0.87	− 4.27	+ 11 58 8.0	44.8	− 2.0
30 η "		31 32.2	58 13.47	2 40.06	1.32	− 1.40	+ 17 47 39.8	36.0	− 1.5
Regulus		32 51.0	9 59 32.48	2 40.06	0.95	− 1.79	+ 13 0 11.4	43.2	− 2.0
34 Leonis	7	35 59.6	10 2 41.60	2 40.06	1.05	− 1.62	+ 14 24 2.4	41.2	− 2.0
438 Mayer		38 46.5	5 28.96	2 40.07	1.27	− 1 42	+ 17 11 17.3	36.8	− 1.7
35 Leonis	7	40 30.4	7 13.15	2 40.07	1.87	− 0.51	+ 24 33 00.0	27.0	+ 0.2
36 ζ "		40 36.7	7 19.47	2 40.07	1.87	− 0.53	+ 24 28 9.3	37.1	+ 0.2
41 γ "		44 0.7	10 44.03	2 40.07	1.57	− 1.15	+ 20 54 41.4	31.8	− 0.8
42 "	7	46 10.1	12 53.78	2 40.07	1.18	− 1.49	+ 16 2 35.1	38.5	− 1.8
44 "	6.7	49 49.8	16 34.08	2 40.08	0.71	− 3.27	+ 9 51 57.2	48.4	− 1.8
	6.7	50 10.2	16 54.54	2 40.08	0.71	− 3.27	+ 9 51 16.4	48.4	− 1.8
49 ρ "		11 57 23.6	24 9.13	2 40.09	0.76	− 3.95	+ 10 24 2.0	47.4	− 1.8
50 "		12 3 13.1	29 59.58	2 40.09	1.27	− 1.42	+ 17 13 55.0	36.9	− 1.7
	10	6 1.2	32 48.14	2 40.00	1.10	− 1.57	+ 15 5 14.0	40.0	− 1.9
52 κ "		10 52.1	37 39.84	2 40.10	1.12	− 1.54	+ 15 19 0.9	39.6	− 1.9
53 l "		13 49.7	40 37.93	2 40.11	0.85	− 4.75	+ 11 40 19.1	45.3	− 2.0
54 "	4.5	19 45.2	46 34.40	2 40.11	1.99	− 0.15	+ 25 52 42.9	25.4	+ 0.7
58 d "		25 13.4	52 3.50	2 40.12	0.34	− 0.61	+ 4 45 53.4	0 57.9	− 1.4
62 g "		28 21.2	55 11.82	2 40.12	0.08	+ 0.11	+ 1 9 9.4	1 5.8	− 0.9
63 χ "		29 42.2	56 33.04	2 40.13	0.61	− 1.50	+ 8 29 22.8	0 50.8	− 1.7
64 "	6	31 53.9	10 58 45.10	2 40.13	1.87	− 0.53	+ 24 28 13.8	27.2	+ 0.1
68 δ "		38 25.2	11 5 17.47	2 40.13	1.63	− 1.05	+ 21 41 14.6	30.8	− 0.6
73 n "		40 22.3	7 14.88	2 40.14	1.06	− 1.61	+ 14 28 10.0	0 41.0	− 2.0
75 "		41 55.9	8 48.74	2 40.14	0.23	− 0.31	+ 3 11 18.4	1 1.1	− 1.2
76 "		43 35.5	10 28.61	2 40.14	0.20	− 0.26	+ 2 49 33.0	1 2.0	− 1.2
77 σ "		45 46.7	12 40.17	2 40.14	0.52	− 1.19	+ 7 12 3.5	0 53.1	− 1.6
78 ι "		48 30.0	15 23.92	2 40.15	0.85	− 4.69	+ 11 42 17.0	45.4	− 2.0
83 "	8	51 34.0	18 28.42	2 40.15	0.30	− 0.49	+ 4 10 47.5	59.1	− 1.3
84 τ "		52 34.4	19 28.98	2 40.15	0.29	− 0.45	+ 4 2 9.1	59.5	− 1.3
88 "	7	56 21.4	23 16.60	2 40.16	1.14	− 1.52	+ 15 33 9.3	39.4	− 1.8
b) 90 "	6	12 59 13.2	26 8.87	2 40.16	1.33	− 1.39	+ 17 58 23.5	35.9	− 1.5
1 ω Virginis		13 3 3.7	30 0.00	2 40.16	0.67	− 1.89	+ 9 19 4.0	49.5	− 1.8
92 Leonis	6	5 17.4	32 14.07	2 40.17	1.70	− 0.93	+ 22 31 59.4	29.7	− 0.3
2 ζ Virginis		9 52.2	36 49.62	2 40.17	0.68	− 2.08	+ 9 26 45.8	49.3	− 1.8
93 Leonis		12 33.2	39 31.06	2 40.17	1.61	− 1.09	+ 21 24 3.0	31.2	− 0.7
94 β "		13 45.5	40 43.56	2 40.18	1.16	− 1.51	+ 15 45 49.1	0 39.1	− 1.8
c) 5 β Virginis		15 7.5	11 42 5.78	2 40.18	0.21	− 0.28	+ 2 58 26.6	1 1.9	− 1.2
10 r "		34 15.5	12 1 16.92	2 40.20	0.22	− 0.30	+ 3 6 11.2	1 1.6	− 1.2
12 τ "		38 8.0	5 10.06	2 40.21	0.83	− 5.53	+ 11 27 6.0	0 45.9	− 1.9
d) 13 n "		13 43 12.2	12 10 15.09	− 2 40.21	− 0.03	+ 0.23	+ 0 24 28.7	+ 1 7.5	− 0.8

a T II and III assumed as 29m. 47s. and 30m. 13.5s.; not 30m. 47s. and 31m. 13.5s.
b Div. assumed as 32 14 15; not 32 14 14.
c Div. assumed as 48 14 15; not 48 14 14.
d Micr. corr. assumed as + 4″; not − 4″.

1783 FEBRUARY 26—Continued Zero corr. = + 1′ 45″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
15 η Virginis		13 44 27.2	12 11 30.29	— 2 40.21	— 0.04	+ 0.20	+ 0 31 40.2	— 1 7.2	— 0.9
17 "		47 9.8	14 13.33	2 40.21	0.47	— 1.04	+ 6 29 51.4	0 54.6	— 1.5
a)	6.7	13 54 29.1	21 33.83	2 40.22	— 1.16	— 1.50	+ 15 49 52.8	0 39.1	— 1.8
29 γ "		14 6 15.2	33 21.86	2 40.24	+ 0.02	+ 0.45	— 0 16 6.5	1 9.1	— 0.8
32 d² "		10 15.8	37 23.15	2 40.24	— 0.64	— 1.60	+ 8 50 42.4	0 50.3	— 1.8
37 "	6	16 9.2	43 17.52	2 40.25	0.30	— 0.50	+ 4 13 29.6	59.3	— 1.3
43 δ "		20 14.2	47 23.19	2 40.26	— 0.33	— 0.56	+ 4 33 53.9	0 58.5	— 1.4
b) 44 κ "		24 0.2	51 9.81	2 40.26	+ 0.19	+ 1.24	— 2 38 52.7	1 15.4	— 0.7
c) 47 ε "		26 59.7	54 9.70	2 40.26	— 0.88	— 4.05	+ 12 6 31.0	0 44.9	— 2.0
d) 49 g "		32 1.3	12 59 12.22	2 40.27	+ 0.69	+ 1.81	— 9 34 44.8	1 37.6	— 0.4
e) 56 "	7.8	38 51.2	13 6 3.25	2 40.28	0.67	+ 1.84	— 9 13 5.6	1 36.1	— 0.4
67 a "		49 12.3	16 26.05	2 40.29	+ 0.72	+ 1.79	— 10 1 37.2	1 39.2	— 0.4
70 "	6	53 18.6	20 23.05	2 40.29	— 1.09	— 1.58	+ 14 55 18.5	0 40.6	— 1.9
74 l² "		56 7.0	23 21.88	2 40.30	+ 0.37	+ 1.76	— 5 8 15.8	1 22.5	— 0.5
79 ζ "		14 59 5.2	26 20.57	2 40.30	— 0.04	+ 0.20	+ 0 30 26.4	1 7.3	— 0.8
81 "	6.7	15 1 38.0	28 53.79	2 40.30	+ 0.49	+ 1.87	— 6 45 52.2	1 27.6	— 0.5
82 m "		5 37.5	32 53.95	2 40.31	0.55	+ 1.88	— 7 36 25.0	1 30.7	— 0.5
86 "		9 46.3	37 3.43	2 40.31	0.82	+ 1.69	— 11 20 3.1	1 44.4	— 0.3
90 p "		15 18 57.1	13 46 15.74	— 2 40.32	+ 0.03	+ 0.52	— 0 26 25.1	— 1 9.7	— 0.8

1783 MARCH 1 Zero corr. = + 1′ 44″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
53 κ Orionis		7 2 23.9	5 40 10.63	— 2 43.80	+ 0.71	+ 1.80	— 9 45 52.0	— 1 33.7	— 0.4
54 χ¹ "		6 31.9	44 19.31	2 43.80	— 1.51	— 1.22	+ 20 11 58.3	0 31.4	— 1.1
58 a "		8 24.2	46 11.92	2 43.80	0.53	— 1.23	+ 7 20 13.6	50.7	— 1.6
f) 235 Mayer		21 25.4	5 59 15.26	2 43.82	1.67	— 0.99	+ 22 11 22.7	28.8	— 0.5
7 η Geminorum		7 26 43.2	6 4 33.93	— 2 43.82	— 1.70	— 0.93	+ 22 31 57.2	— 0 28.4	— 0.3

1783 MARCH 6 Zero corr. = + 1′ 47″.1.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
g) 87 a Tauri	1	5 29 10.6	4 26 24.78	— 2 52.53	— 1.18	— 1.49	+ 16 2 18.8	— 0 36.3	— 1.8
h) 94 τ "		5 34 54.9	4 32 10.03	2 52.54	— 1.70	— 0.93	+ 22 30 18.1	0 27.9	— 0.4
34 δ Orionis	6	6 26 24.6	5 23 48.19	2 52.61	+ 0.04	+ 0.53	— 0 29 9.2	1 5.5	— 0.8
123 ζ Tauri		30 12.9	27 37.11	2 52.62	— 1.57	— 1.15	+ 20 58 23.5	0 29.9	— 0.8
50 ζ Orionis		35 15.7	32 40.74	2 52.62	+ 0.15	+ 1.08	— 2 4 56.7	1 9.3	— 0.7
12 Leporis		38 31.0	35 56.57	2 52.63	1.70	+ 1.72	— 22 28 34.0	2 44.9	— 1.3
13 γ "		40 49.3	38 15.25	2 52.63	1.70	+ 1.73	— 22 30 56.4	2 45.3	— 1.4
i) 15 δ "		47 22.8	44 49.83	2 52.64	+ 1.56	+ 1.48	— 20 53 55.8	2 31.6	— 1.0
58 a Orionis		48 53.6	46 20.88	2 52.64	— 0.53	— 1.23	+ 7 20 10.4	0 49.8	— 1.6
1 H Geminorum		6 56 23.6	5 53 52.11	2 52.65	1.76	— 0.81	+ 23 14 16.7	27.0	— 0.2
235 Mayer	7.8	7 1 54.3	5 59 23.72	2 52.66	1.65	— 0.99	+ 22 11 16.4	28.4	— 0.5
7 η Geminorum		7 12.5	6 4 42.79	2 52.67	1.68	— 0.93	+ 22 31 54.8	28.0	— 0.3
13 μ "		15 14.7	12 46.31	2 52.68	1.69	— 0.94	+ 22 35 13.2	28.0	— 0.3
j) Uranus		19 49.1	17 21.46	2 52.68	1.78	— 0.71	+ 23 43 2.2	26.5	0.0
	8	24 9.7	21 42.77	2 52.69	1.28	— 1.41	+ 17 32 2.4	34.4	— 1.6
k) 258 Mayer	7	27 45.8	25 19.46	2 52.70	1.19	— 1.48	+ 16 20 21.6	36.1	— 1.8
24 γ Geminorum		30 32.8	28 6.92	2 52.71	1.20	— 1.47	+ 16 32 58.8	35.7	— 1.7
262 Mayer		35 7.2	32 42.07	2 52.71	1.30	— 1.40	+ 17 49 17.7	34.0	— 1.5
27 ε Geminorum		35 55.3	33 30.30	2 52.71	— 1.91	— 0.27	+ 25 18 26.8	0 24.7	+ 0.5
Sirius		40 50.1	38 25.91	2 52.71	+ 1.19	+ 1.67	— 16 25 42.8	2 2.0	— 0.5
38 e Geminorum		47 43.8	45 20.74	2 52.72	— 0.96	— 1.72	+ 13 25 10.4	0 40.3	— 2.0
42 ω¹ "		54 29.4	52 7.45	2 52.73	1.84	— 0.53	+ 24 29 13.3	25.6	+ 0.1
l) 43 ζ "		7 56 32.0	54 10.39	2 52.73	1.54	— 1.16	+ 20 51 8.2	30.1	— 0.8
		8 1 11.0	58 50.15	2 52.74	1.19	— 1.47	+ 16 26 30.0	36.0	— 1.8
45 o "	6.7	1 12.6	6 58 51.75	2 52.74	1.18	— 1.48	+ 16 14 36.2	36.1	— 1.8
47 "		3 11.4	7 0 50.87	2 52.74	2.08	+ 0.27	+ 27 10 24.6	22.5	+ 1.0
49 "	7.8	4 43.4	2 23.12	2 52.74	1.98	— 0.08	+ 26 4 18.0	23.8	+ 0.7
52 n "		8 6 40.9	7 4 20.94	— 2 52.74	— 1.90	— 0.32	+ 25 13 25.8	— 0 24.8	+ 0.4

a ζ assumed as 33° 1′ 14″; not 33° 1′ 44″.
b Div. assumed as 54 14 15; not 54 14 14.
c Div. assumed as 39 3 1; not 39 3 0.
d Min. assumed as 31 32; not 32 33.
e T. I assumed as 28s; not 38s.
f ζ assumed as 26°; not 36°.
g Min. assumed as 29; not 28.
h ζ assumed as 26° 20′; not 26° 28′.
i Div. assumed as 74; not 71.
j ζ assumed as 25°; not 28°.
k ζ assumed as 32° 30′ 44″; not 32° 30′ 14″.
l Hour assumed as 7; not 8.

1783 MARCH 6—Continued Zero corr. = + 1′ 47″.1.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q.	ζ — φ	Refr.	q′
		h. m. s.	h. m. s.	m. s.	s.	s.	° ′ ″	′ ″	″
54 λ Geminorum .		8 10 52.9	7 8 33.65	— 2 52.75	— 1.22	— 1.44	+ 16 53 51.6	— 0 35.3	— 1.7
55 δ " . .		12 24.1	10 5.10	2 52.75	1.66	— 0.96	+ 22 20 44.6	28.2	— 0.4
57 A " . .		15 28.7	13 10.20	2 52.75	1.92	— 0.26	+ 25 25 45.8	24.5	+ 0.5
66 a " . .		25 56.2	23 39.42	2 52.77	2.56	+ 1.39	+ 32 19 25.2	16.9	+ 2.5
69 υ " . .		27 44.6	25 28.12	2 52.77	2.09	+ 0.33	+ 27 20 26.0	22.4	+ 1.1
71 γ^2 " . .		30 10.4	27 54.32	2 52.78	2.84	+ 1.33	+ 35 2 25.4	13.9	+ 3.1
75 σ " . .		34 54.6	32 39.30	2 52.78	2.28	+ 1.08	+ 29 22 8.4	20.1	+ 1.7
a) 78 β " . .		36 31.0	34 16.06	2 52.78	1.88	— 0.41	+ 24 52 50.7	25.3	+ 0.4
82 " . .		40 44.8	38 30.46	2 52.79	1.77	— 0.73	+ 23 38 32.0	26.7	0.0
83 φ " . .		45.21.2	43 7.62	2.52.80	2.08	+ 0.30	+ 27 17 21.0	22.4	+ 1.0
	9	45 36.1	43 22.55	2 52.80	2.06	+ 0.24	+ 27 5 50.2	22.6	+ 1.0
85 l " . .	7	48 9.2	45 56.07	2 52.80	1.51	— 1.17	+ 20 25 18.2	30.7	— 1.0
1 Cancri . .	6	49 48.0	47 35.14	2 52.80	1.19	— 1.48	+ 16 90 14.3	36.1	— 1.8
2 ω^1 " . .		52 55.6	50 43.25	2 52.81	1.97	— 0.11	+ 25 56 52.4	23.9	+ 0.7
4 ω^2 " . .	7	53 45.5	51 33.29	2 52.81	1.94	— 0.20	+ 25 38 58.0	24.3	+ 0.6
6 " . .		55 17.8	53 5.84	2 52.81	2.18	+ 0.73	+ 28 21 53.5	21.2	— 1.4
8 " . .	6	8 58 7.4	7 55 55.91	2 52.82	0.98	— 1.69	+ 13 42 15.0	39.9	— 2.0
13 ψ^1 " . .		9 2 11.5	8 0 0.68	2 52.82	2.02	+ 0.02	+ 26 26 43.0	93.4	+ 0.8
16 ζ " . .		4 52.3	2 41.92	2 52.82	1.34	— 1.37	+ 18 16 3.4	33.5	— 1.5
17 β " . .		9 51.2	7 41:64	2 52.83	0.70	— 3.17	+ 9 49 27.7	46.0	— 1.8
b)		12 12.1	10 2.93	2 52.83	1.82	— 0.58	+ 24 26 00.0	25.8	+ 0.1
19 λ " . .		12 42.3	10 33.21	2 52.83	1.85	— 0.56	+ 24 40 11.8	25.5	+ 0.3
20 d^1 " . .		16 0.6	13 52.05	2 52.84	1.39	— 1.31	+ 18 59 46.2	32.6	— 1.3
22 ϕ^1 " . .		18 18.5	16 10.33	2 52.84	2.20	+ 0 80	+ 28 34 21:2	21.0	+ 1.5
31 θ " . .		9 24 16.5	8 22 9.31	—2 52.85	— 1.38	— 1.32	+ 18 47 41.1	— 0 32.9	— 1.4

1783 MARCH 9 Zero corr. = + 1′ 46″.3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q.	ζ — φ	Refr.	q′
58 a Orionis . .		6 37 14.6	5 46 29.63	— 3 1.61	—. 0.52	— 1.23	+ 7 20 10.4	— 0.50.6	— 1.6
c) 140 Tauri . .	7.8	41 8.2	50 23.87	3 1.62	1.68	— 0.88	+ 22 51 0.8	28.0	— 0.2
1 H Geminorum .		44 44.5	54 0.76	3 1.63	1.72	— 0.81	+ 23 14 14.4	27.5	— 0.2
2 " . .	7.8	47 23.0	5 56 39.69	3 1.63	1.75	— 0.74	+ 23 37 15.6	27.0	0.0
7 η " . .		55 33.5	6 4 51.53	3 1.64	1.66	— 0.93	+ 22 31 56.8	28.4	— 0.3
9 " . .	8	6 57 31.0	6 49.35	3 1.65	1.76	— 0.70	+ 23 46 36.8	26.8	0.0
13 μ " . .		7 3 35.7	12 55.05	3 1.66	1.66	— 0.92	+ 22 35 15.4	28.3	— 0.3
184 LC. " . .	7.8	6 5.0	15 24.76	3 1.66	1.74	— 0.76	+ 23 31 25.6	27.2	0.0
Uranus . .		7 8 7.6	6 17 27.70	— 3 1.66	— 1.76	— 0.71	+ 23 43 7.0	— 0 26.9	0.0

1783 MARCH 17 Zero corr. = + 1′ 47″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q.	ζ — φ	Refr.	q′
Capella . .		5	. . .	. . .	. .	+ 2.27	+ 45 43 51.0	— 0 3.2	+ 5.2
d) Rigel . .		26 39.1	5 7 14.96	— 3 9.99	+ 0.60	+ 1.87	— 8 28 16.6	1 31.1	— 0.5
112 β Tauri . .		35 9.7	15 46.96	3 9.99	— 2.16	+ 0.74	+ 28 23 2.7	0 21.9	+ 1.4
e) 9 β Leporis . .		41 26.5	22 4.79	3 9.99	+ 1.53	+ 1.48	— 20 55 58.0	2 37.9	— 1.0
34 δ Orionis . .		43 26.8	24 5.42	3 10.00	0.03	+ 0.53	— 0 29 5.7	1 8.1	— 0.8
46 ε " . .		47 43.0	28 22.32	3 10.00	0.09	+ 0.86	— 1 21 55.4	1 10.2	— 0.7
50 ζ " . .		5 52 18.0	32 58.07	3 10.01	+ 0.15	+ 1.07	— 2 4 53.7	1 12.0	— 0.7
f) 58 a " . .		6 5 56.3	46 38.64	3 10.01	— 0.52	— 1.23	+ 7 20 9.2	0 51.8	— 1.6
1 H Geminorum .		13 25.5	5 54 9.04	3 10.02	1.72	— 0.81	+ 23 14 14.2	28.1	— 0.2
7 ε " . .		24 14.4	6 4 59.72	3 10.02	1.66	— 0.93	+ 22 31 57.0	29.0	— 0.3
9 " . .	7.8	26 11.8	6 57.44	3 10.03	1.76	+ 0.70	+ 23 46 33.0	27.4	0.0
13 μ " . .		32 16.5	13 3.14	3 10.04	1.66	— 0.92	+ 22 35 16.2	28.9	— 0.3
183 ξ LC. . .	7	34 47.8	15 34.85	3 10.04	1.73	— 0.78	+ 23 24 31.3	27.9	— 0.2
g) Uranus . .		36 53.3	17 40.69	3 10.04	1.76	— 0.72	+ 23 42 58.5	27.5	0.0
	7.8	41 20.1	22 8.22	3 10.05	1.64	— 0.97	+ 22 18 5.0	29.3	— 0.4
		6 45 18.1	6 20 6.87	— 3.10.05	— 1.64	— 0.98	+ 22 15 12.0	— 0.29.4	— 0.4

a Name assumed as κ, not β, Geminorum.
b ζ assumed as 24° 25′; not 24° 35′.
c ζ assumed as 26° 0′ 2″; not 26° 0′ 52″. And Div. assumed as 27 11 12; not 27 11 13
d Div. assumed as 61; not 64.
e Div. assumed as 74.6; not 74.7.
f T. III assumed as 19s.7; not 20s.7.
g Div. assumed as 26; not 27.

Name	Mag.	T	App. sid. time	Clock corr.	ϰ tan δ	q	ζ—φ	Refr.	q
1783 MARCH 18								Zero corr. = + 1′ 48″. 3.	
		h m s	h m s	m s	s		° ′ ″	′ ″	″
Capella . .		5 19 23.2	5 3 54.42	— 3 10.70	— 4.10	+ 2.27	+ 45 43 47.8	— 0 3.2	+ 5.2
Rigel . .		22 44.2	7 15.97	3 10.71	+ 0.60	+ 1.87	— 8 28 17.4	1 32.4	— 0.5
112 β Tauri . .		31 14.9	15 48.07	3 10.71	— 2.16	+ 0.73	+ 28 23 2.0	0 22.2	+ 1.4
34 δ Orionis . .		39 31.5	24 6.03	3 10.71	+ 0.03	+ 0.53	— 0 29 10.0	1 9.1	— 0.8
46 ε " . .		43 47.7	28 22.93	3 10.71	0.10	+ 0.86	— 1 21 57.4	1 11.2	— 0.7
50 ζ " . .		5 48 23.0	32 58.98	3 10.72	+ 0.15	+ 1.08	— 2 4 55.0	1 13.0	— 0.7
58 a " . .		6 2 0.4	46 38.62	3 10.72	— 0.52	— 1.23	+ 7 20 10.4	0 52.6	— 1.6
a) 1 H Geminorum .		9 30.5	5 54 9.95	3 10.73	1.72	— 0.81	+ 23 14 14.5	28.5	— 0.2
7 η " . .		20 19.7	6 5 0.93	3 10.73	1.66	— 0.93	+ 22 31 56.2	29.4	— 0.3
9 " . .	7	22 16.8	6 58.35	3 10.73	1.76	— 0.70	+ 23 46 31.4	27.9	0.0
13 μ " . .		28 21.3	13 3.85	3 10.74	1.66	— 0.91	+ 22 35 14.2	29.4	— 0.3
184 ξ LC. . .	7	30 51.7	15 34.66	3 10.74	1.74	— 0.76	+ 23 31 26.6	28.2	0.0
Uranus . .		32 59.3	17 42.61	3 10.74	1.76	— 0.71	+ 23 42 57.8	27.9	0.0
	7.8	39 33.3	24 17.69	3 10.74	1.64	— 0.98	+ 22 15 11.3	29.9	— 0.4
	7	43 8.7	27 53.68	3 10.74	1.76	— 0.70	+ 23 44 56.2	27.9	0.0
27 ε Geminorum .		49 2.4	33 48.35	3 10.75	— 1.89	— 0.30	+ 25 18 25.4	0 26.0	+ 0.5
Sirius . .		6 53 57.2	6 38 43.96	3 10.75	+ 1.18	+ 1.67	— 16 25 37.8	2 8.3	— 0.5
2 ξ¹ Virginis . .		11 51 44.7	11 37 20.38	3 10.90	— 0.67	— 2.08	+ 9 26 40.8	0 49.3	— 1.8
b) 4 ξ² " . .	7	54 24.2	40 0.31	3 10.90	0.67	— 2.05	+ 9 25 50.0	0 46.9	— 1.8
5 β " . .		11 56 59.8	42 36.34	3 10.90	0.21	— 0.28	+ 2 58 22.5	1 1.9	— 1.2
	10	12 0 9.6	45 46.66	3 10.90	0.69	— 2.97	+ 9 45 35.0	0 48.9	— 1.8
6 A " . .		1 32.2	47 9.48	3 10.90	0.68	— 2.57	+ 9 37 53.4	49.0	— 1.8
492 Mayer . .	7	4 42.3	50 20.10	3 10.90	0.33	— 0.59	+ 4 40 24.0	58.1	— 1.4
7 b Virginis . .	7	6 26.4	11 52 4.48	3 10.91	0.34	— 0.63	+ 4 50 50.0	0 57.8	— 1.4
12 t " . .		25 4.3	12 10 45.44	3 10.91	0.02	+ 0.23	+ 0 24 24.7	1 7.5	— 0.8
15 η " . .		26 19.5	12 0.85	3 10.92	0.04	+ 0.20	+ 0 31 40.2	1 7.2	— 0.9
17 " . .		12 29 2.4	12 14 44.20	— 3 10.92	— 0.46	— 1.04	+ 6 29 49.8	— 0 54.6	— 1.5
1783 MARCH 21								Zero corr. = + 1′ 50″. 4.	
c) Capella . .		5 7 36.7	5 3 55.64	— 3 11.81	— 4.10	+ 2.27	+ 45 43 50.3	— 0 3.2	+ 5.2
Rigel . .		10 57.2	7 16.69	3 11.81	+ 0.60	+ 1.87	— 8 28 21.2	1 32.4	— 0.5
46 ε Orionis . .		32 0.8	28 23.75	3 11.81	+ 0.10	+ 0.86	— 1 22 0.0	1 11.2	— 0.7
58 a " . .		50 12.8	46 38.74	3 11.81	— 0.52	— 1.23	+ 7 20 7.9	0 52.5	— 1.6
1 H Geminorum .		5 57 43.3	5 54 10.47	3 11.81	1.72	— 0.81	+ 23 14 13.2	28.5	— 0.2
7 η " . .		6 8 32.8	6 5 1.75	3 11.81	1.66	— 0.93	+ 22 31 54.8	29.4	— 0.3
13 μ " . .		16 34.7	13 4.97	3 11.82	1.67	— 0.92	+ 22 35 13.5	29.5	— 0.3
Uranus . .		21 18.5	17 49.55	3 11.82	1.76	— 0.72	+ 23 42 53.2	27.9	0.0
	7	31 21.7	27 54.40	3 11.82	1.76	— 0.71	+ 23 44 56.8	27.9	0.0
27 ε Geminorum .		37 15.5	33 49.17	3 11.82	— 1.89	— 0.30	+ 25 18 24.8	0 25.9	+ 0.5
Sirius . .		6 42 10.2	6 38 44.68	3 11.82	+ 1.18	+ 1.67	— 16 25 43.4	2 8.3	— 0.5
17 ε Leonis . .		9 39 41.9	9 36 45.54	3 11.85	— 1.84	— 0.46	+ 24 44 26.1	26.6	+ 0.3
	7	41 13.4	38 17.29	3 11.85	1.83	— 0.48	+ 24 37 8.6	26.8	+ 0.3
24 μ " . .		9 46 33.6	9 43 38.37	3 11.85	2.04	+ 0.20	+ 26 59 44.2	23.8	+ 1.0
Regulus . .		10 2 56.2	10 0 3.66	— 3 11.86	— 0.92	— 1.79	+ 13 0 2.6	— 0 43.0	— 2.0
1783 MARCH 29								Zero corr. = + 1′ 40″. 6.	
67 ρ Cancri . .		8 26 2.0	8 54 25.97	— 3 10.53	— 2.19	+ 0.86	+ 28 43 18.9	— 0 21.7	+ 1.5
	8.9	32 1.1	9 0 26.06	3 10.53	1.15	— 1.49	+ 16 5 27.3	38.0	— 1.8
d) 81 π " . .		35 13.1	3 38.59	3 10.53	1.13	— 1.50	+ 15 50 35.6	38.5	— 1.8
e) 82 " . .		38 3.1	6 29.06	3 10.53	1.13	— 1.50	+ 15 48 45.8	38.6	— 1.8
83 " . .		41 39.8	10 6.35	3 10.53	1.35	— 1.34	+ 18 35 42.5	34.5	— 1.4
f) 402 Mayer . .		46 15.7	14 43.01	3 10.53	2.02	+ 0.14	+ 26 49 5.0	23.9	+ 1.0
1 κ Leonis . .		46 45.8	15 13.19	3 10.53	2.04	+ 0.24	+ 27 5 0.8	23.7	+ 1.0
2 ω " . .		51 38.2	20 6.39	3 10.53	0.70	— 3.55	+ 9 58 33.8	47.8	— 1.8
4 λ " . .		54 4.3	22 32.89	3 10.53	1.77	— 0.68	+ 23 53 39.9	27.5	0.0
	8.9	8 58 3.4	9 26 32.65	— 3 10.53	— 1.07	— 1.57	+ 15 1 00.0	— 0 39.7	— 1.9

a T. II, III assumed as 30.2s., 55.2s.; not 20.2s., 45.2s., respectively.
b ζ assumed as 39° 25′ 15″; not 39° 20′ 15″.
c Transits over Ts. II and III assumed as 14.5s. and 59.5s.; not 4.5s. and 9.5s., respectively.
d ζ assumed as 33° 0′ 27″; not 33° 0′ 7″.
e ζ assumed as 35° 2′ 21″; not 35° 2′ 51″, and Div. assumed as 35; not 33.
f ζ assumed as 22° 2′ 0″; not 22° 1′ 0″.

1783 MARCH 29—Continued Zero corr. = + 1′ 40″. 6.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7 Leonis . .		8 58 46.1	9 27 15.47	— 3 10.53	— 1.09	— 1.54	+ 15 19 19.0	— 0 39.3	— 1.9
	14 ο " . .		9 4 21.2	32 51.49	3 10.52	0.77	— 4.28	+ 10 51 16.0	46.2	— 1.9
	17 ε " . .		8 13.6	36 44.53	3 10.52	1.84	— 0.45	+ 24 44 31.2	26.5	+ 0.3
	20 " . .		12 23.2	40 54.81	3 10.52	1.63	— 0.99	+ 22 9 43.5	29.7	— 0.5
	24 μ " . .		15 5.4	43 37.45	3 10.52	2.04	+ 0.20	+ 26 59 50.8	23.7	+ 1.0
		8.9	17 28.1	46 0.54	3 10.52	1.92	— 0.19	+ 25 38 20.2	25.4	+ 0.6
	27 γ " . .		21 14.4	49 47.46	3 10.52	0.96	— 1.72	+ 13 27 20.6	42.1	— 2.0
a)	29 π " . .							+ 9 3 47.2	49.3	— 1.8
b)	431 Mayer . .	7	28 35.0	57 9.24	3 10.52	1.21	— 1.45	+ 16 47 13.8	37.1	— 1.7
	30 η Leonis . .		30 9.6	9 58 44.11	3 10.52	1.28	— 1.40	+ 17 47 40.6	35.8	— 1.5
	Regulus .		31 29.3	10 0 4.03	3 10.52	0.92	— 1.79	+ 13 0 12.4	42.8	— 2.0
	438 Mayer . .	7	37 24.2	5 59.90	3 10.52	1.24	— 1.42	+ 17 11 23.8	36.5	— 1.7
	36 ζ Leonis . .		39 14.4	7 50.40	3 10.52	1.82	— 0.53	+ 24 28 12.3	26.9	+ 0.1
	41 γ " . .		42 37.7	11 14.26	3 10.52	1.53	— 1.15	+ 20 54 45.2	31.4	— 0.8
	42 " . .		44 47.3	13 24.22	3 10.52	1.15	— 1.49	+ 16 2 44.7	38.2	— 1.8
	446 Mayer . .	7.8	47 31.1	16 8.47	3 10.52	0.82	— 4.76	+ 11 39 51.4	44.9	— 2.0
	45 Leonis . .	7	50 51.2	19 29.12	3 10.52	0.76	— 4.28	+ 10 50 47.6	46.2	— 1.9
	47 " . .		56 1.4	24 40.17	3 10.52	0.73	— 3.95	+ 10 24 7.7	47.0	— 1.8
	49 " . .		9 58 15.1	10 26 54.24	— 3 10.52	— 0.69	— 2.94	+ 9 45 6.9	— 0 48.1	— 1.8

1783 APRIL 2 Zero corr. = + 1′ 45″. 0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
c)		9.10	7 25 7.4	8 9 7.57	— 3 9.69	— 0.69	— 3.12	+ 9 48 27.0	— 0 47.8	— 1.8
d)	17 β Cancri . .		25 51.2	9 51.49	3 9.69	0.69	— 3.08	+ 9 47 40.0	47.8	— 1.8
	20 d^1 " . .		30 8.0	14 8.99	3 9.69	1.38	— 1.31	+ 18 59 45.6	33.8	— 1.3
		9	30 11.4	14 12.40	3 9.69	1.36	— 1.33	+ 18 47		
		10.11	34 40.7	18 42.44	3 9.69	1.36	— 1.33	+ 18 45 30.0	34.2	— 1.3
	36 c^1 Cancri . .		44 31.2	28 34.55	3 9.69	0.73	— 3.94	+ 10 22 49.2	46.8	— 1.8
	37 c^2 " . .		45 30.1	29 33.61	3 9.69	0.73	— 3.90	+ 10 18 13.8	47.0	— 1.8
	363 Mayer . .	8.9	48 30.5	32 34.58	3 9.69	1.50	— 1.18	+ 20 36 46.2	31.6	— 0.9
	43 γ Cancri . .							+ 22 12 55.8	29.5	— 0.5
	47 δ " . .							+ 18 55 13.8	34.0	— 1.3
	372 Mayer . .	7	7 57 31.2	41 36.68	3 9.68	1.42	— 1.26	+ 19 36 32.5	33.0	— 1.1
e)	55 σ^2 Cancri . .		8 2 37.0	46 43.32	3 9.68	2.67	+ 1.39	+ 33 42 29.4	16.0	+ 2.9
	60 a^1 " . .		3 12.0	47 18.44	3 9.68	0.88	— 3.32	+ 12 25 32.8	43.4	— 2.0
		6.7	7 56.3	52 3.50	3 9.68	2.19	+ 0.86	+ 28 43 17.9	21.6	+ 1.5
	69 ν " . .		9 6.9	53 14.29	3 9.68	1.89	— 0.32	+ 25 16 21.8	25.7	+ 0.5
f)		10	11 14.3	55 22.04	3 9.68	1.90	— 0.26	+ 25 26 0.6	25.5	+ 0.5
		10	13 10.5	8 57 18.56	3 9.68	1.29	— 1.39	+ 17 57 1.0	35.2	— 1.5
	78 Cancri . .	7.8	15 56.1	9 0 4.61	3 9.68	1.32	— 1.36	+ 18 19 2.6	34.8	— 1.5
		8.9	20 18.6	4 27.83	3 9.67	0.81	— 5.31	+ 11 32 0.0	45.0	— 2.0
	83 " . .	7	25 54.6	10 4.75	3 9.67	1.35	— 1.34	+ 18 35 43.3	34.4	— 1.4
		9	28 38.8	12 49.41	3 9.67	1.65	— 0.96	+ 22 23 25.0	29.4	— 0.4
	402 Mayer . .	7	30 30.9	14 41.82	3 9.67	2.02	+ 0.13	+ 26 48 59.6	23.9	+ 1.0
g)	1 κ Leonis . .		31 0.8	15 11.80	3 9.67	2.05	+ 0.23	+ 27 4 56.8	23.6	+ 1.0
		6.7	34 3.7	18 15.20	3 9.67	1.09	— 1.56	+ 15 12 58.0	39.3	— 1.9
h)	2 ω Leonis . .		35 51.6	20 3.40	3 9.67	0.70	— 3.55	+ 9 58 27.5	47.6	— 1.8
	4 λ " . .		38 19.7	22 31.91	3 9.67	1.77	— 0.68	+ 23 53 33.4	27.5	0.0
	7 " . .		43 1.4	27 14.38	3 9.67	1.09	— 1.54	+ 15 19 9.0	39.2	— 1.9
	11 " . .		45 10.4	29 23.73	3 9.67	1.09	— 1.55	+ 15 17 57.4	39.2	— 1.9
	13 " . .	8	48 6.7	32 20.51	3 9.67	2.02	+ 0.14	+ 26 52 4.0	23.9	+ 1.0
	14 ο " . .		49 46.2	34 0.28	3 9.66	2.40	+ 1.30	+ 30 56 18.0	19.1	+ 2.2
		7	51 53.7	36 8.13	3 9.66	1.82	— 0.54	+ 24 26 30.0	26.8	+ 0.1
	17 ε " . .		52 29.0	36 43.53	3 9.66	1.84	— 0.45	+ 24 44 30.2	26.4	+ 0.3
		7.8	54 0.5	38 15.27	3 9.66	1.83	— 0.48	+ 24 37 11.1	26.5	+ 0.3
	22 G " . .		58 30.4	42 45.91	3 9.66	1.90	— 0.28	+ 25 23 26.7	25.6	+ 0.5
	24 μ " . .		8 59 20.7	43 36.35	3 9.66	2.04	+ 0.20	+ 26 59 50.2	23.7	+ 1.0
	27 ν " . .		9 5 29.6	49 46.26	3 9.66	0.95	— 1.72	+ 13 27 11.2	42.0	— 2.0
i)	29 π " . .		7 40.4	51 57.42	3 9.66	0.64	— 1.67	+ 9 3 39.6	49.2	— 1.8
		9	9 10 52.7	9 55 10.25	— 3 9.66	— 1.45	— 1.23	+ 19 58 31.7	— 0 32.6	— 1.1

a ζ assumed as 39° 47′ 20″; not 39° 47′ 40″.
b Min. assumed as 28m; not 29m.
c ζ assumed as 39° 2′ 38″; not 39° 2′ 8″.
d Not 17 β Cancri.
e Name assumed as 59 Cancri, not 55 σ^2 Cancri.
f Div. assumed as 24 15, not 24 14.
g Div. assumed as 35 14 0, not 35 0 14.
h T. I rejected.
i ζ assumed as 39° 47′ 17″; not 39° 47′ 27″, and Micr. corr. assumed as — 4, not + 4.

1783 APRIL 2—Continued Zero corr. = + 1′ 45″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
431 Mayer . .	7	0 12 49.3	0 57 7.17	— 3 9.66	— 1.21	— 1.44	+ 16 47 5.2	— 0 37.0	— 1.7
30 η Leonis . .		14 24.8	9 58 42.93	3 9.65	1.28	— 1.40	+ 17 47 36.9	35.6	— 1.5
Regulus . .		15 43.5	10 0 1.84	3 9.65	0.92	— 1.79	+ 13 0 4.2	42.7	— 2.0
33 Leonis . .	7	17 52.5	2 11.19	3 9.65	1.20	— 1.45	+ 16 44 55.0	37.1	— 1.7
34 " . .	7.8	18 52.4	3 11.25	3 9.65	1.03	— 1.62	+ 14 23 58.2	40.7	— 2.0
438 Mayer . .	7.8	21 39.5	5 58.81	3 9.65	1.23	— 1.42	+ 17 11 15.8	36.5	— 1.7
36 ζ Leonis . .		23 29.2	7 48.81	3 9.65	1.82	— 0.53	+ 24 28 6.0	26.8	+ 0.1
41 γ " . .		26 53.2	11 13.37	3 9.65	1.53	— 1.16	+ 20 54 36.6	31.3	— 0.8
44 " . .		32 42.1	17 3.23	3 9.65	0.70	— 3.30	+ 9 51 47.8	48.0	— 1.8
	8.9	33 1.6	17 22.78	3 9.65	0.70	— 3.29	+ 9 51 10.0	48.0	— 1.8
46 i Leonis . .		39 27.9	23 50.14	3 9.65	1.09	— 1.56	+ 15 13 31.6	39.4	— 1.9
a) 49 " . .		42 29.1	26 51.84	3 9.64	0.69	— 2.93	+ 9 44 52.3	48.1	— 1.8
455 Mayer . .	8	44 57.8	29 20.95	3 9.64	1.33	— 1.36	+ 18 22 48.8	34.8	— 1.5
50 Leonis . .		46 5.8	30 29.14	3 9.64	1.24	— 1.42	+ 17 13 50.0	36.4	— 1.7
	10	48 6.5	32 30.17	3 9.64	1.45	— 1.23	+ 19 57 58.0	32.7	— 1.1
	7.8	50 57.1	35 21.24	3 9.64	1.41	— 1.28	+ 19 25 35.0	33.4	— 1.3
51 m Leonis . .		53 31.7	37 56.26	3 9.64	1.46	— 1.23	+ 20 0 33.0	32.6	— 1.1
53 l " . .		9 56 42.6	41 7.68	3 9.64	0.83	— 4.75	+ 11 40 12.5	44.9	— 2.0
48 " . .	7	10 1 41.2	46 7.10	3 9.64	2.01	+ 0.06	+ 26 37 0.2	24.2	+ 0.9
54 " . .		2 37.4	47 3.45	3 9.64	1.94	— 0.14	+ 25 52 46.4	25.1	+ 0.7
58 d " . .		8 6.5	52 33.45	3 9.63	0.33	— 0.61	+ 4 45 48.8	57.2	— 1.4
63 χ " . .		12 34.8	10 57 2.48	3 9.63	— 0.60	— 1.49	+ 8 29 19.4	0 50.3	— 1.7
66 " . .	8	16 51.5	11 1 19.88	3 9.63	+ 0.01	+ 0.40	— 0 10 19.4	1 8.0	— 0.8
68 δ " . .		21 18.2	5 47.31	3 9.63	— 1.59	— 1.05	+ 21 41 13.9	0 30.4	— 0.6
74 φ " . .		24 18.6	8 48.21	3 9.63	+ 0.17	+ 1.20	— 2 28 43.6	1 13.7	— 0.7
76 " . .		26 28.0	10 57.96	3 9.63	— 0.19	— 0.26	+ 2 49 23.3	1 1.1	— 1.2
77 σ " . .		28 39.2	13 9.52	3 9.63	0.50	— 1.19	+ 7 11 58.6	0 52.6	— 1.6
78 ι " . .		31 22.5	15 53.26	3 9.63	0.83	— 4.69	+ 11 42 14.9	44.9	— 2.0
80 " . .		33 22.2	17 53.29	3 9.63	0.35	— 0.68	+ 5 2 14.5	56.8	— 1.4
84 τ " . .		35 27.3	19 58.73	3 9.63	— 0.28	— 0.46	+ 4 2 5.4	0 58.8	— 1.3
87 e " . .		37 51.8	22 23.63	3 9.63	+ 0.13	+ 1.01	— 1 49 9.6	1 12.2	— 0.7
	8	41 7.2	25 39.56	3 9.62	— 0.26	— 0.39	+ 3 40 56.0	0 59.5	— 1.3
1 ω Virginis . .		45 56.7	30 29.85	3 9.62	0.65	— 1.89	+ 9 18 58.4	48.9	— 1.8
2 ξ¹ " . .		52 45.2	37 19.47	3 9.61	0.66	— 2.08	+ 9 26 44.8	48.8	— 1.8
b) 94 β Leonis . .		55 25.3	40 0.01	3 9.61	1.57	— 1.09	+ 21 24 11.0	0 30.8	— 0.7
5 β Virginis . .		10 57 59.8	11 42 34.93	— 3 9.61	— 0.21	— 0.28	+ 2 54 24.4	— 1 1.0	— 1.2

1783 APRIL 3 Zero corr. = + 1′ 41″.1.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h. m. s.	h. m. s.	m. s.	s.	s.	° ′ ″	′ ″	″
c) 42 Leonis . .		9 25 6.6	10 13 23.04	— 3 9.65	— 1.15	— 1.49	+ 16 2 37.7	— 0 37.7	— 1.8
44 " . .		28 46.3	17 3.34	3 9.65	0.69	— 3.30	+ 9 51 48.4	47.3	— 1.8
	8.9	29 7.2	17 24.30	3 9.65	0.69	— 3.29	+ 9 51 11.4	47.3	— 1.8
45 " . .		31 8.6	19 26.03	3 9.65	0.77	— 4.26	+ 10 50 43.2	45.6	— 1.9
46 ι " . .		35 31.7	23 49.85	3 9.65	1.09	— 1.56	+ 15 13 32.6	38.8	— 1.9
48 " . .		38 22.7	26 41.32	3 9.65	0.56	— 1.37	+ 8 2 56.7	50.4	— 1.7
	9	39 38.2	27 57.03	3 9.64	0.57	— 1.40	+ 8 8 36.8	50.1	— 1.7
50 " . .	6.7	42 10.0	30 29.25	3 9.64	1.24	— 1.42	+ 17 13 57.4	35.9	— 1.7
	8.9	42 51.2	31 10.56	3 9.64	1.23	— 1.42	+ 17 7 25.6	36.1	— 1.7
d)	7.8	47 1.3	35 21.34	3 9.64	1.41	— 1.28	+ 19 25 40.5	33.0	— 1.2
51 m " . .		49 35.2	37 55.66	3 9.64	1.46	— 1.23	+ 20 0 35.0	32.1	— 1.1
52 κ " . .	8.9	51 25.6	39 46.36	3 9.64	1.10	— 1.54	+ 15 19 57.3	38.6	— 1.9
53 l " . .		52 46.0	41 6.98	3 9.64	0.83	— 4.75	+ 11 40 15.5	44.3	— 2.0
	7.8	56 35.0	44 56.61	3 9.64	2.07	+ 0.33	+ 27 20 3.1	23.0	+ 1.1
54 " . .		9 58 41.5	47 3.46	3 9.64	1.94	— 0.15	+ 25 52 45.6	24.8	+ 0.7
	8	10 1 51.6	50 14.08	3 9.64	1.53	— 1.17	+ 20 45 34.4	31.1	— 0.8
e) 58 d " . .		4 6.7	52 29.55	3 9.64	0.33	— 0.61	+ 4 45 50.4	56.4	— 1.4
	8.9	7 13.7	55 37.06	3 9.64	0.61	— 1.56	+ 8 43 50.8	49.2	— 1.8
63 χ " . .		10 8 38.7	10 57 2.29	— 3 9.64	— 0.60	— 1.49	+ 8 29 20.7	— 0 49.6	— 1.7

a Div. assumed as 41, not 44.
b Name assumed as 93 Leonis, not 94 β.
c ξ assumed as 32° 48′ 28″, not 32° 47′ 58″.
d Div. assumed as 31; not 34.
e The mean α deduced from transit over T. III would agree with d'Agelet's other observations and the catalogue-place of this star T.s I and II harmonize with T. III and each other on the supposition that the thread-interval for 44° 5′ Z.D. is 26s.5, (its true amount being 23s.1,) and the α resulting from the mean of the three transits differs 3s.6 from the mean of d'Agelet's five other observations. T.s I and II should probably be rejected, although they are here retained.

1783 APRIL 3—Continued Zero corr. = + 1′ 41″.1

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h. m. s.	h. m. s.	m. s.	s.	s.	° ′ ″	′ ″	″
67 Leonis . .		10 11 58.5	11 0 22.64	— 3 9.63	— 1.93	— 0.16	+ 25 48 23.3	— 0 24.8	+ 0.7
a) 68 δ “ . .		17 21.6	5 46.62	3 9.63	1.59	— 1.05	+ 21 41 14.2	30.0	— 0.6
b)	9	18 50.5	7 15.76	3 9.63	1.16	— 1.48	+ 16 16 25.0	0 37.4	— 1.8
76 “ . .		22 32.7	10 58.57	3 9.63	0.20	— 0.26	+ 2 49 24.2	1 0.3	— 1.2
77 σ “ . .		24 43.5	13 9.73	3 9.63	0.50	— 1.19	+ 7 11 57.2	0 51.8	— 1.6
c) 78 ι “ . .		27 26.6	15 53.28	3 9.63	0.83	— 4.69	+ 11 42 14.9	44.3	— 2.0
83 “ . .	8.9	30 31.1	18 58.28	3 9.63	0.29	— 0.49	+ 4 10 45.0	57.7	— 1.3
84 τ “ . .		31 31.0	19 58.44	3 9.63	0.28	— 0.46	+ 4 2 1.1	58.0	— 1.3
	7.8	36 54.8	25 23.03	3 9.63	0.32	— 0.55	+ 4 32 40.2	57.1	— 1.4
89 “ . .		37 59.2	26 27.61	3 9.63	0.30	— 0.50	+ 4 14 54.2	0 57.6	— 1.3
91 υ “ . .		40 33.1	29 1.93	3 9.62	0.02	+ 0.25	+ 0 21 37.5	1 6.0	— 0.8
92 “ . .		44 13.6	32 43.03	3 9.62	1.66	— 0.93	+ 22 32 2.8	0 29.0	— 0.3
d) 2 ξ¹ Virginis . .		48 48.7	37 18.88	3 9.62	0.67	— 2.08	+ 9 26 45.8	48.1	— 1.8
		52 11.6	40 42.34	3 9.62	1.11	— 1.52	+ 15 28 9.2	38.5	— 1.9
94 β Leonis . .		52 42.1	41 12.92	3 9.62	1.13	— 1.50	+ 15 45 51.1	0 38.1	— 1.8
5 β Virginis . .							+ 2 58 22.8	1 0.3	— 1.2
	9.10	57 14.6	45 46.17	3 9.62	0.69	— 2.83	+ 9 45 33.6	0 47.5	— 1.8
6 A Virginis . .		10 58 37.1	47 8.90	3 9.62	0.68	— 2.57	+ 9 37 55.2	47.8	— 1.8
492 Mayer . .	6.7	11 1 47.0	50 19.32	3 9.62	0.33	— 0.59	+ 4 40 29.2	56.7	— 1.4
7 b Virginis . .		3 30.5	52 3.10	3 9.61	0.34	— 0.63	+ 4 50 54.2	56.4	— 1.4
9 o “ . .		8 51.1	11 57 24.58	3 9.61	0.70	— 3.44	+ 9 55 14.7	0 47.3	— 1.8
10 r “ . .		13 12.5	12 1 46.70	3 9.61	0.22	— 0.29	+ 3 6 7.2	1 0.0	— 1.2
11 s “ . .		13 38.8	2 13.07	3 9.61	0.49	— 1.15	+ 6 59 52.0	0 52.3	— 1.6
12 t “ . .		17 5.0	5 39.83	3 9.61	0.81	— 5.56	+ 11 27 4.0	44.8	— 1.9
	8	17 6.3	5 41.13	3 9.61	0.80	— 4.77	+ 11 14 53.0	0 45.2	— 1.9
e) 13 n “ . .		22 9.0	10 44.66	3 9.61	0.03	+ 0.23	+ 0 24 27.7	1 6.0	— 0.8
15 η “ . .		23 24.2	12 0.06	3 9.61	0.04	+ 0.20	+ 0 31 38.8	1 5.7	— 0.9
17 “ . .	6	26 7.2	14 43.54	3 9.61	0.46	— 1.04	+ 6 29 50.4	0 53.4	— 1.5
	9.10	31 12.8	19 49.96	3 9.61	0.94	— 1.76	+ 13 17 0.4	42.0	— 2.0
	8.9	33 26.1	22 3.63	3 9.60	1.13	— 1.50	+ 15 49 51.8	38.1	— 1.8
20 “ . .	7	36 43.2	25 21.27	3 9.60	0.81	— 5.76	+ 11 28 32.6	0 44.8	— 1.9
		42 23.1	31 2.10	3 9.60	— 0.02	+ 0.25	+ 0 19 43.0	1 6.1	— 0.8
29 γ “ . .		45 12.2	33 51.66	3 9.60	+ 0.02	+ 0.45	— 0 16 7.8	1 7.5	— 0.8
32 d² “ . .		49 13.2	37 53.32	3 9.60	— 0.62	— 1.60	+ 8 50 41.2	0 49.1	— 1.8
34 “ . .		50 51.9	39 32.29	3 9.60	0.93	— 1.78	+ 13 7 42.5	42.5	— 2.0
36 “ . .		52 35.1	41 15.77	3 9.60	1.09	— 1.55	+ 15 17 24.2	38.9	— 1.9
37 “ . .		55 6.1	43 47.18	3 9.60	— 0.30	— 0.50	+ 4 13 29.4	0 57.7	— 1.3
38 “ . .		56 34.5	45 15.82	3 9.60	+ 0.17	+ 0.16	— 2 22 54.8	1 12.9	— 0.7
43 δ “ . .		11 59 11.2	47 52.95	3 9.60	— 0.32	— 0.56	+ 4 33 51.4	0 57.1	— 1.4
44 κ “ . .		12 2 57.6	51 39.97	3 9.60	+ 0.18	+ 1.24	— 2 38 55.4	1 13.5	— 0.7
47 ε “ . .		5 56.6	12 57 39.46	3 9.59	— 0.86	— 4.04	+ 12 6 34.5	0 43.8	— 2.0
67 α “ . .		28 9.6	13 16 56.11	3 9.59	+ 0.71	+ 1.79	— 10 1 41.2	1 36.9	— 0.4
70 “ . .		32 16.2	21 3.39	3 9.59	— 1.07	— 1.58	+ 14 55 20.0	0 39.5	— 1.9
79 ζ “ . .		38 2.2	26 50.34	3 9.59	— 0.04	+ 0.20	+ 0 30 19.7	1 5.8	— 0.8
81 “ . .		40 35.2	29 23.76	3 9.58	+ 0.48	+ 1.87	— 6 46 0.4	25.6	— 0.5
82 m . . .		44 34.7	33 23.92	3 9.58	0.53	+ 1.88	— 7 36 32.2	28.2	— 0.5
549 Mayer . .	6.7	46 58.0	35 47.61	3 9.58	0.31	+ 1.66	— 4 24 31.0	18.4	— 0.6
20 p Virginis . .		12 57 54.0	46 45.41	3 9.58	0.03	+ 0.52	— 0 26 27.6	8.1	— 0.8
	7	13 2 53.2	51 45.43	3 9.58	0.17	+ 1.20	— 2 29 48.6	13.2	— 0.7
94 “ . .		9 4.8	57.58.05	3 9.57	0.55	+ 1.88	— 7 51 22.0	29.2	— 0.5
95 “ . .		9 31.7	13 58 25.02	3 9.57	0.58	+ 1.88	— 8 16 37.5	30.5	— 0.5
f) 96 “ . .		11 44.7	14 0 38.38	3 9.57	0.65	+ 1.83	— 9 18 5.0	34.3	— 0.4
g) 97 “ . .		15 16.1	4 10.33	3 9.57	0.62	+ 1.86	— 8 52 38.1	33.2	— 0.4
98 κ “ . .		15 34.9	4 29.21	3 9.57	0.65	+ 1.83	— 9 15 38.9	34.5	— 0.4
564 Mayer . .	7	17 18.9	6 13.49	3 9.57	0.35	+ 1.73	— 4 56 25.5	20.4	— 0.5
99 ι Virginis . .		18 53.8	7 48.65	3 9.57	0.35	+ 1.73	— 4 58 0.3	20.6	— 0.5
100 λ “ . .		21 37.2	10 32.50	3 9.57	0.88	+ 1.62	— 12 21 54.8	46.7	— 0.3
103 υ² “ . .		25 3.5	13 59.36	3 9.57	0.07	+ 0.73	— 0 59 59.9	9.7	— 0.7
h) 104 “ . .		30 15.0	19 11.71	3 9.57	0.36	+ 1.76	— 5 8 30.4	21.0	— 0.5
105 φ “ . .		31 16.6	20 13.48	3 9.57	+ 0.08	+ 0.83	— 1 15 30.0	1 10.4	— 0.7
27 γ Bootis . .		37 36.3	26 34.22	3 9.56	— 3.27	+ 1.28	+ 39 14 0.0	0 10.0	+ 3.9
	7.8	41 6.5	30 5.00	3 9.56	2.16	+ 0.75	+ 28 24 40.2	22.0	+ 1.4
	6	13 44 35.6	14 33 34.67	— 3 9.56	— 1.03	— 1.61	+ 14 27 13.0	— 0 40.5	— 2.0

a Div. assumed as 1 59; not 15 7.
b ζ assumed as 32° 34′; not 32° 39′.
c Div. assumed as 9 15; not 9 14.
d ζ assumed as 39° 24′; not 39° 25′.
e ζ assumed as 48° 26′ 35″; not 48° 26′ 45″.
f ζ assumed as 58° 9′ 30″; not 58° 9′ 20″.
g T. II assumed as 13m. 16s.; not 13m. 6s.
h ζ assumed as 53° 59′ 37″; not 33° 59′ 47″; and Div. assumed as 57 9 8; not 57 9 9.

1783 APRIL 3—Continued Zero corr. = + 1′ 41″.1.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h. m. s.	h. m. s.	m. s.	s.	s.	° ′ ″	′ ″	″
30 ζ Boötis		13 45 2.0	14 34 1.14	− 3 9.56	− 1.04	− 1.60	+ 14 38 44.1	− 0 40.2	− 1.9
109 Virginis	4.5	49 29.7	38 29.57	3 9.56	0.20	− 0.25	+ 2 48 7.2	1 1.1	− 1.2
	7	50 38.9	39 38.96	3 9.56	− 0 20	− 0.27	+ 2 56 25.8	1 0.9	− 1.2
α^2 Libræ		53 3.2	42 3.66	3 9.56	+ 1.08	+ 1.61	− 15 7 39.4	2 0.3	− 0.5
a) 13 ξ^1 “		56 45.6	45 46.66	3 9.56	0.78	+ 1.71	− 11 0 21.4	1 41.3	− 0.3
15 ξ^2 “		13 59 8.6	48 10.05	3 9.56	0.74	+ 1.75	− 10 31 35.9	39.4	− 0.3
17 “		14 1 17.6	50 19.40	3 9.55	0.72	+ 1.78	− 10 15 55.9	38.3	− 0.4
	7.8						− 10 3 23.6	37.4	− 0.4
	7.8	4 36.8	53 39.15	3 9.55	+ 0.53	+ 1.88	− 7 29 8.1	1 28.4	− 0.5
	8.9	7 51.5	14 56 54.38	3 9.55	− 0.82	− 4.99	+ 11 34 18.0	0 45.0	− 2.0
	5.6	11 34.2	15 0 37.69	3 9.55	1.40	− 1.30	+ 19 15 59.4	33.6	− 1.3
	6.7	18 5.2	7 9.76	3 9.55	1.76	− 0.71	+ 23 46 20.8	27.7	0.0
Boötis H 44	6	22 49.5	11 54.84	3 9.55	1.57	− 1.09	+ 21 21 2.2	30.8	− 0.7
b)	6.7	25 52.4	14 58.24	3 9.55	1.93	− 0.19	+ 25 43 18.2	25.3	+ 0.7
	4.5	31 53.8	21 0.63	3 9.55	2.81	+ 1.33	+ 35 4 11.0	14.5	+ 3.1
	6.7	34 33.7	23 40.97	3 9.55	3.29	+ 1.29	+ 39 26 56.4	9.8	+ 3.9
12 τ Serpentis	5.6	36 17.0	25 24.55	3 9.55	1.21	− 1.44	+ 16 46 47.0	37.1	− 1.7
	6	37 11.0	26 18.70	3 9.55	1.20	− 1.45	+ 16 44 0.0	37.2	− 1.7
15 “		39 48.5	28 56.64	3 9.55	1.33	− 1.35	+ 18 21 55.0	34.9	− 1.5
7 ζ Cor. Borealis	4	45 16.6	34 25.64	3 9.54	3.05	+ 1.27	+ 37 19 1.1	12.1	+ 3.5
26 Serpentis	6	48 55.8	38 5.44	3 9.54	1.30	− 1.39	+ 17 55 59.8	35.5	− 1.5
	8.9	53 53.7	43 4.16	3 9.54	1.05	− 1.59	+ 14 42 51.4	40.1	− 1.9
	8	56 5.9	45 16.72	3 9.54	1.14	− 1.50	+ 15 52 59.0	38.4	− 1.8
	6	14 59 59.4	49 10.86	3 9.54	1.40	− 1.30	+ 19 14 35.3	33.7	− 1.3
13 ε Cor. Borealis		15 2 37.5	51 49.39	3 9.54	2.08	+ 0.37	+ 27 29 19.0	23.2	+ 1.1
5 τ Herculis	6.7	8 6.4	15 57 19.19	3 9.54	1.33	− 1.35	+ 18 23 9.8	34.8	− 1.5
	7.8	11 22.5	16 0 35.83	3 9.54	0.99	− 1.67	+ 13 54 20.6	41.5	− 2.0
	7	15 17 46.4	16 7 0.78	− 3 9.53	− 2.06	+ 0.28	+ 27 12 41.0	− 0 23.5	+ 1.0

1783 APRIL 4 Zero corr. = + 1′ 42″.8.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
Rigel		4					− 8 28 17.9	− 1 30.7	− 0.5
112 β Tauri		24 22.6	5 15 46.19	− 3 9.10	− 2.16	+ 0.73	+ 28 23 8.0	0 21.8	+ 1.4
24 γ Orionis		25 16.9	16 40.54	3 9.09	− 0.43	− 0.96	+ 6 7 28.5	0 53.9	− 1.5
34 δ “		32 39.7	24 4.65	3 9.09	+ 0.03	+ 0.53	− 0 29 5.2	1 7.8	− 0.8
123 ζ Tauri		36 28.1	27 53.67	3 9.09	− 1.53	− 1.14	+ 20 58 28.8	0 30.9	− 0.8
c) 46 η Orionis							− 1 21 52.7	1 9.9	− 0.7
50 ζ “		41 31.2	32 57.60	3 9.09	+ 0.15	+ 1.07	− 2 4 53.3	1 11.7	− 0.7
58 α “		4 55 8.3	5 46 36.94	3 9.09	− 0.52	− 1.23	+ 7 20 13.4	0 51.5	− 1.6
7 η Geminorum		5 13 27.3	6 4 58.95	3 9.08	1.66	− 0.93	+ 22 31 58.7	28.9	− 0.3
d) 13 μ “		21 29.2	13 2.17	3 9.08	1.67	− 0.92	+ 22 35 22.2	28.8	− 0.3
24 γ “		36 47.3	28 22.78	3 9.07	1.19	− 1.47	+ 16 33 2.1	36.9	− 1.7
27 ε “		42 10.2	33 46.56	3 9.07	− 1.89	− 0.30	+ 25 18 30.4	0 25.5	+ 0.5
Sirius		5 47 4.8	38 41.97	3 9.07	+ 1.18	+ 1.67	− 16 25 40.4	2 6.2	− 0.5
e) 43 ζ Geminorum		6 2 46.7	6 54 26.46	3 9.07	− 1.52	− 1.16	+ 20 51 14.2	0 31.1	− 0.8
55 δ “		18 39.1	7 10 21.47	3 9.06	1.64	− 0.96	+ 22 20 46.6	29.1	− 0.4
Procyon		39 21.6	31 7.37	3 9.05	0.40	− 0.87	+ 5 45 11.8	54.6	− 1.5
78 β Geminorum		43 26.2	35 12.64	3 9.05	2.17	+ 0.79	+ 28 30 47.4	21.7	+ 1.5
81 “		44 59.2	36 45.89	3 9.05	1.38	− 1.31	+ 19 0 21.8	33.6	− 1.3
83 φ “		51 35.8	43 23.58	3 9.05	2.06	+ 0.32	+ 27 17 26.5	23.2	+ 1.1
f) 85 l “		54 23.7	46 11.94	3 9.05	1.49	− 1.20	+ 20 25 23.4	31.8	− 1.0
2 ω^1 Cancri		59 9.9	50 58.92	3 9.05	1.95	− 0.11	+ 25 57 1.5	24.8	+ 0.7
3 “		6 59 44.5	51 33.61	3 9.05	1.29	− 1.40	+ 17 52 12.9	35.2	− 1.5
g) 8 “		7 4 21.6	56 11.47	3 9.05	0.97	− 1.69	+ 13 42 22.0	41.2	− 2.0
10 μ^1 “		6 21.2	58 11.40	3 9.05	1.63	− 0.99	+ 22 10 39.8	29.4	− 0.5
12 “		7 56.2	7 59 46.66	3 9.04	1.01	− 1.63	+ 14 14 28.4	40.5	− 2.0
15 ψ^3 Cancri		11 1.1	8 2 52.07	3 9.04	2.33	+ 1.22	+ 30 16 10.7	19.7	+ 2.0
327 Mayer	7	13 6.3	4 57.61	3 9.04	1.32	− 1.36	+ 18 17 51.6	34.7	− 1.5
17 β Cancri		7 16 6.4	8 7 58.20	− 3 9.04	− 0.69	− 3.18	+ 9 49 31.8	− 0 47.5	− 1.8

a ζ assumed as 59° 51′; not 59° 46′.
b Micr. corr. assumed as − 4; not + 4.
c Name 46 ε Orionis; not 46 η Orionis.
d Div. assumed as 28 0 3; not 28 0 2.
e Div. assumed as 29; not 27.
f Div. assumed as 30; not 34.
g ζ assumed as 35°; not 25°.

1783 APRIL 4—Continued Zero corr. = + 1′ 42″.8.

Name	Mag.	T.	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
331 Mayer . .	7	7 17 7.0	8 8 58.96	— 3 9.04	— 0.67	— 2.21	+ 9 30 29.5	— 0 48.1	— 1.8
19 λ Cancri . .		18 56.7	10 48.97	3 9.04	1.84	— 0.56	+ 24 40 16.8	26.3	+ 0.3
a) 20 d^1 " . .		22 14.9	14 7.71	3 9.04	1.38	— 1.31	+ 18 59 48.6	33.7	— 1.3
22 ϕ^1 " . .		24 32.6	16 25.79	3 9.04	2.18	+ 0.80	+ 28 34 21.2	21.7	+ 1.5
23 ϕ^2 " . .		24 57.0	16 50.26	3 9.04	2.09	+ 0.42	+ 27 36 30.5	22.8	+ 1.2
28 v^2 " . .		27 1.6	18 55.20	3 9.04	1.85	— 0.42	+ 24 49 52.0	26.1	+ 0.3
341 Mayer . .		28 2.6	19 56.37	3 9.04	1.87	— 0.39	+ 25 1 57.0	25.9	+ 0.4
31 θ Cancri . .		30 31.4	22 25.58	3 9.04	1.36	— 1.32	+ 18 47 47.1	33.9	— 1.4
36 c^1 " . .		36 38.7	28 33.89	3 9.04	0.73	— 3.94	+ 10 22 56.2	46.6	— 1.8
	7.8	43 39.8	35 36.14	3 9.03	2.24	+ 1.05	+ 29 11 44.4	21.0	+ 1.6
48 ι Cancri . .		44 46.5	36 43.01	3 9.03	2.26	+ 1.10	+ 29 31 6.5	20.6	+ 1.8
	7.8	47 32.0	39 28.96	3 9.03	2.75	+ 1.37	+ 34 29 13.0	15.0	+ 2.9
51 σ^1 " . .		50 22.7	42 20.13	3 9.03	2.62	+ 1.40	+ 33 15 3.4	16.4	+ 2.7
	7	53 15.2	45 13.10	3 9.03	2.04	+ 0.21	+ 27 0 50.0	23.5	+ 1.0
b)	7	54 40.8	46 38.94	3 9.03	1.89	— 0.30	+ 25 14 48.4	25.6	+ 0.4
66 σ^4 " . .	7	7 59 16.6	51 15.50	3 9.03	2.61	+ 1.40	+ 33 3 53.0	16.6	+ 2.7
69 ν ". . .		8 1 14.6	53 13.82	3 9.03	1.89	— 0.30	+ 25 16 24.0	25.6	+ 0.4
c) 72 τ " . .		6 8.0	58 8.02	3 9.03	2.36	+ 1.26	+ 30 29 30.4	19.5	+ 2.0
75 " . .	6.7	7 11.0	8 59 11.19	3 9.02	2.08	+ 0.39	+ 27 29 38.6	22.9	+ 1.1
80 " . .		10 56.7	9 2 57.51	3 9.02	1.37	— 1.32	+ 18 54 10.8	33.8	— 1.3
82 " . .		14 25.8	6 27.18	3 9.02	1.13	— 1.50	+ 15 48 45.9	38.0	— 1.8
d) 83 " . .		18 2.0	10 3.97	3 9.02	1.35	— 1.34	+ 18 35 47.2	34.2	— 1.4
	7.8	20 31.8	12 34.18	3 9.02	1.26	— 1.41	+ 17 29 36.0	35.7	— 1.7
e) 402 Mayer . .		22 38.1	14 40.82	3 9.02	2.02	+ 0.13	+ 26 49 0.0	23.8	+ 1.0
1 κ Leonis . .		23 8.9	15 11.71	3 9.02	2.04	+ 0.24	+ 27 5 1.6	23.4	+ 1.0
	7.8	26 11.1	18 14.41	3 9.02	1.09	— 1.56	+ 15 13 3.0	39.0	— 1.9
3 " . .	6	28 4.1	20 7.72	3 9.02	0.64	— 1.72	+ 9 6 35.3	48.8	— 1.8
4 λ " . .		30 27.5	22 31.51	3 9.02	1.77	— 0.68	+ 23 53 39.9	27.3	0.0
7 " . .		35 8.7	27 13.48	3 9.02	1.09	— 1.54	+ 15 19 15.0	38.9	— 1.9
13 " . .		40 15.0	32 20.62	3 9.01	2.02	+ 0.14	+ 26 52 8.0	23.7	+ 1.0
16 ψ " . .		43 0.7	35 6.77	3 9.01	1.07	— 1.57	+ 14 59 14.6	39.4	— 1.9
17 ε " . .		44 37.1	36 43.43	3 9.01	1.84	— 0.45	+ 24 44 34.7	26.2	+ 0.3
	7.8	46 8.2	38 14.78	3 9.01	1.83	— 0.50	+ 24 37 14.0	26.4	+ 0.3
20 " . .		48 47.4	40 54.42	3 9.01	1.63	— 0.99	+ 22 9 44.5	29.4	— 0.5
24 μ " . .		8 51 28.4	43 35.86	3 9.01	2.04	+ 0.20	+ 26 59 51.5	23.6	+ 1.0
	9.10	9 2 51.2	55 0.53	3 9.01	0.65	— 1.82	+ 9 15 15.0	48.5	— 1.8
431 Mayer . .		4 57.0	57 6.67	3 9.01	1.21	— 1.45	+ 16 47 6.2	36.7	— 1.7
30 η Leonis . .		6 32.6	58 42.53	3 9.01	1.28	— 1.40	+ 17 47 40.1	35.3	— 1.5
f)	8.9	7 41.3	9 59 51.42	3 9.00	0.92	— 1.79			
Regulus .		7 51.5	10 0 1.65	3 9.00	0.92	— 1.79	+ 13 0 8.4	42.5	— 2.0
34 Leonis . .	7	11 0.0	3 10.67	3 9.00	1.03	— 1.62	+ 14 24 0.7	40.3	— 2.0
35 " . .		15 30.9	7 42.31	3 9.00	1.83	— 0.51	+ 24 33 10.0	26.5	+ 0.2
36 ζ " . .		15 36.8	7 48.23	3 9.00	1.82	— 0.53	+ 24 28 10.3	26.7	+ 0.1
g) 41 γ " . .		19 0.8	11 12.79	3 9.00	1.53	— 1.15	+ 20 54 40.7	31.2	— 0.8
42 " . .		21 10.1	13 22.34	3 9.00	1.15	— 1.49	+ 16 2 38.2	37.9	— 1.8
43 " . .	7	22 38.8	14 51.38	3 9.00	0.53	— 1.28	+ 7 37 20.0	51.4	— 1.7
44 " . .		9 24 49.4	10 17 2.34	3 8.99	0.70	— 3.30	+ 9 51 54.2	47.6	— 1.8
492 Mayer . .	6.7	10 57 50.5	11 50 18.72	3 8.99	0.33	— 0.59	+ 4 40 29.4	57.2	— 1.4
h) 90 Virginis .		11 4 54.9	11 57 24.28	3 8.96	0.70	— 3.44	+ 9 55 14.7	47.6	— 1.8
	9.10	7 40.1	12 0 9.93	3 8.96	0.51	— 1.20	+ 7 13 40.0	0 52.3	— 1.6
10 r		9 15.5	1 45.59	3 8.96	0.22	— 0.30	+ 3 6 7.7	1 0.3	— 1.2
	9.10	11 55.0	4 25.54	3 8.96	0.50	— 1.16	+ 7 3 56.6	0 52.6	— 1.6
7 Comæ . .		16 2.7	8 33.92	3 8.96	1.88	— 0.35	+ 25 7 42.6	0 25.9	+ 0.4
13 n Virginis .		18 12.0	10 43.57	3 8.96	0.03	+ 0.23	+ 0 24 34.5	1 6.4	— 0.8
15 η " . .		19 27.8	11 59.58	3 8.96	0.04	+ 0.20	+ 0 31 38.2	1 6.1	— 0.9
i) 17 " . .		22 10.5	14 42.73	3 8.96	0.46	— 1.04	+ 6 29 50.5	0 53.5	— 1.5
	7	29 29.8	22 3.23	3 8.96	1.13	— 1.50	+ 15 49 50.2	38.4	— 1.8
j) 20 " . .	6	32 46.6	25 20.56	3 8.96	0.81	— 5.73	+ 11 28 36.1	45.1	— 1.9
	6	36 49.0	29 23.63	3 8.95	0.70	— 3.56	+ 9 58 30.2	47.6	— 1.8
27 " . .		41 20.2	33 55.41	3 8.95	0.82	— 4.87	+ 11 36 0.0	45.0	— 2.0
k) 30 ρ " . .		11 41 35.3	12 34 10.71	— 3 8.95	— 0.81	— 5.27	+ 11 24 55.6	— 0 45.2	— 1.9

a ζ assumed as 29° 51′ 17″; not 29° 50′ 17″.
b Div, assumed as 2 13; not 2 3.
c Div. assumed as 9 5; not 11 5.
d Div. assumed as 4 5; not 4 15.
e Transit over T II assumed as rec'd over T III.
f ζ assumed as that of a star given in the Catalogues as 1′ 44″ from Regulus.
g ζ assumed as 27° 56′ 25″; not as 27° 56′ 55″.
h Name assumed as 9 o Virginis; not as 90 Virginis.
i ζ assumed as 42° 21′ 14″.5; not as 42° 21′ 4″.5
j T II assumed as 32m. 46s.; not 33m. 46s.
k Div. assumed as 39; not 40.

1783 APRIL 4—Continued Zero corr. = + 1′ 42″. 8.

Name	Mag.	T	App. sid. time.	Clock corr.	s tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
31 d¹ Virginis		11 45 16.5	12 37 52.52	— 3 8.95	— 0.62	— 1.60	+ 8 50 39.7	— 0 49.4	— 1.8
34 "		46 55.4	39 31.69	3 8.95	0.93	— 1.77	+ 13 7 43.1	42.5	— 2.0
36 "		48 38.7	41 15.27	3 8.95	1.09	— 1.55	+ 15 17 24.0	39.2	— 1.9
37 "		51 9.3	43 46.28	3 8.95	0.29	— 0.49	+ 4 13 24.6	58.1	— 1.3
43 δ "		55 15.2	47 52.85	3 8.95	0.32	— 0.55	+ 4 33 51.9	0 57.5	— 1.4
	8	56 57.0	49 34.93	3 8.94	— 0.18	— 0.21	+ 2 35 29.5	1 1.6	— 1.1
44 κ "		11 59 1.2	51 39.47	3 8.94	+ 0.18	+ 1.24	— 2 38 55.0	14.0	— 0.7
48 "		12 3 15.5	55 54.47	3 8.94	0.17	+ 1.20	— 2 30 12.2	13.5	— 0.7
49 g "		7 2.3	12 59 41.89	3 8.94	0.68	+ 1.81	— 9 34 53.7	35.8	— 0.4
50 "		8 53.8	13 1 33.70	3 8.94	0.64	+ 1.84	— 9 10 22.7	34.1	— 0.4
	7.8	10 48.1	3 28.31	3 8.94	0.71	+ 1.79	— 10 4 5.5	37.4	— 0.4
56 "	7	13 52.2	6 32.91	3 8.94	0.65	+ 1.84	— 9 13 9.0	34.3	— 0.4
	6.7	16 33.7	9 14.85	3 8.94	+ 0.66	+ 1.82	— 9 24 13.4	1 35.2	— 0.4
	6	20 11.6	12 53.18	3 8.94	— 0.28	— 0.47	+ 4 4 14.8	0 58.4	— 1.3
64 "		21 44.3	14 26.30	3 8.94	— 0.44	— 0.99	+ 6 16 49.4	0 54.1	— 1.5
67 a "		24 13.1	16 55.51	3 8.94	+ 0.71	+ 1.79	— 10 1 39.4	1 37.4	— 0.4
72 l¹ "		29 33.7	22 16.99	3 8.93	+ 0.37	+ 1.78	— 5 21 12.4	· 21.7	— 0.5
79 ζ "		34 6.1	26 50.14	3 8.93	— 0.03	+ 0.20	+ 0 30 23.7	6.1	— 0.8
a) 81 "		36 38.2	29 22.66	3 8.93	+ 0.47	+ 1.87	— 6 45 58.1	26.0	— 0.5
82 m "		40 38.4	33 23.52	3 8.93	0.53	+ 1.88	— 7 36 30.2	1 28.8	— 0.5
87 "	5.6	46 1.3	38 47.30	3 8.93	1.20	+ 1.65	— 16 45 46.0	2 9.2	— 0.5
89 "		48 28.9	41 15.31	3 8.93	1.22	+ 1.64	— 17 2 27.2	2 11.0	— 0.5
b) 90 P "		53 57.8	46 45.11	3 8.92	0.03	+ 0.52	— 0 26 28.0	1 8.5	— 0.8
	6.7	12 58 57.3	51 45.43	3 8.92	+ 0.17	+ 1.20	— 2 29 47.1	13.5	— 0.7
557 Mayer	6.7	13 3 13.3	56 2.12	3 8.92	+ 0.58	+ 1.88	— 8 12 51.4	30.9	— 0.5
95 Virginis		5 34.7	13 58 23.91	3 8.92	0.58	+ 1.88	— 8 16 37.8	31.1	— 0.5
c) 96 "		7 48.2	14 0 37.78	3 8.92	0.65	+ 1.83	— 9 18 5.0	35.0	— 0.4
97 "	8	11 20.0	4 10.16	3 8.92	0.63	+ 1.86	— 8 52 38.1	33.4	— 0.4
99 ι¹ "		14 57.8	7 48.56	3 8.92	0.35	+ 1.73	— 4 58 2.6	20.8	— 0.5
100 λ "		17 41.5	10 32.71	3 8.92	0.88	+ 1.62	— 12 21 56.5	47.3	— 0.3
d) 103 υ² "		21 7.3	13 59.07	3 8.92	0.07	+ 0.74	— 0 59 58.6	9.9	— 0.7
104 "		26 18.6	19 11.22	3 8.91	0.36	+ 1.76	— 5 8 37.0	21.2	— 0.5
105 φ "		27 19.6	20 12.39	3 8.91	+ 0.08	+ 0.84	— 1 15 32.8	1 10.5	— 0.7
27 γ Boötis		33 39.8	26 33.63	3 8.91	— 3.26	+ 1.28	+ 39 14 1.0	0 10.0	+ 3.9
	7.8	37 10.7	30 5.11	3 8.91	2.16	+ 0.75	+ 28 24 36.6	22.0	+ 1.4
	6	40 39.4	33 34.38	3 8.91	1.03	— 1.61	+ 14 27 16.5	40.6	— 2.0
30 ζ "		41 5.9	34 0.95	3 8.91	1.04	— 1.60	+ 14 38 44.6	40.4	— 1.9
	9	44 25.7	37 21.30	3 8.91	0.59	— 1.53	+ 8 36 32.0	49.9	— 1.8
	8	46 1.9	38 57.76	3 8.91	0.75	— 4.04	+ 10 33 51.8	46.7	— 1.9
e)	7.8	50 15.6	43 12.16	3 8.91	1.77	— 0.67	+ 23 54 56.4	27.6	0.0
f)	8.9	51 19.8	44 16.53	3 8.91	1.76	— 0.70	+ 23 47 31.0	27.7	0.0
	9	13 56 42.0	49 39.61	3 8.90	1.30	— 1.39	+ 17 58 6.0	35.4	— 1.5
	6	14 1 24.4	54 22.78	3 8.90	1.69	— 0.87	+ 22 53 18.8	28.8	— 0.2
43 ψ "	4	5 22.3	14 58 21.33	3 8.90	2.10	+ 0.48	+ 27 46 32.7	22.8	+ 1.3
	6	7 37.6	15 0 37.00	3 8.90	1.40	— 1.29	+ 19 15 54.4	33.6	— 1.3
	8.9	10 14.0	3 13.93	3 8.90	1.90	— 0.25	+ 25 29 0.0	25.6	+ 0.5
g)	7	14 13 15.1	15 6 15.43	— 3 8.90	— 1.70	— 1.23	+ 20 4 0.0	— 0 31.2	— 1.1

1783 APRIL 5 Zero corr. = + 1′ 39″. 3.

Name	Mag.	T	App. sid. time.	Clock corr.	s tan δ	q	ζ — φ	Refr.	q′
112 β Tauri		4 20 26.4	5 15 45.90	— 3 8.70	— 2.16	+ 0.74	+ 28 23 8.8	— 0 21.4	+ 1.4
h) 34 δ Orionis		28 43.4	24 4.26	3 8.70	+ 0.03	+ 0.53	— 0 29 5.0	1 6.6	— 0.8
58 a "		4 51 11.8	5 46 36.36	3 8.68	— 0.52	— 1.23	+ 7 20 13.6	0 50.6	— 1.6
24 γ Geminorum		5 32 50.8	6 28 22.20	3 8.66	1.19	— 1.47	+ 16 33 4.1	36.3	— 1.7
i) Procyon		6 35 25.2	7 31 6.88	3 8.63	0.40	— 0.87	+ 5 45 13.0	53.6	— 1.5
j) 83 φ Geminorum		47 39.6	43 23.29	3 8.63	2.06	+ 0.31	+ 27 17 26.6	22.7	+ 1.0
k) 85 l "	7	50 27.5	46 11.65	3 8.62	1.49	— 1.20	+ 20 25 25.2	31.1	— 0.9
l) 2 ω¹ Cancri		55 13.7	50 58.63	3 8.62	1.94	— 0.13	+ 25 57 4.5	24.3	+ 0.7
6 χ "		6 57 36.1	53 21.42	3 8.62	2.16	+ 0.73	+ 28 21 59.5	21.6	+ 1.4
8 "		7 0 24.7	56 10.48	3 8.62	0.97	— 1.69	+ 13 42 21.0	40.6	— 2.0
10 μ² "		7 2 24.3	7 58 10.41	— 3 8.62	— 1.63	— 0.99	+ 22 10 41.0	— 0 29.0	— 0.5

a T II assumed as 38s.; not 48s.
b ζ assumed as 49° 17′ 33″; not 49° 17′ 43″.
c ζ assumed as 58° 9′ 10″; not 58° 9′ 30″.
d ζ assumed as 49° 51′ 4″; not 49° 51′ 24″.
e T. I rejected.
f ζ assumed as 25° 3′ 34″; not 25° 3′ 14″.
g ζ assumed as 28°; not 25°.
h ζ assumed as 20° 27′; not 20° 57′.
i, j, k, l Hour assumed as 6; not 5.

1783 APRIL 5—Continued Zero corr. = + 1′ 39″. 3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a) 13 ψ¹ Cancri . .		7 4 30.2	8 0 16.66	− 3 8.62	− 1.99	+ 0.01	+ 26 26 51.5	− 0 23.8	+ 0.8
16 ζ " . .		7 9.8	2 56.69	3 8.62	1.32	− 1.36	+ 18 16 11.4	34.1	− 1.5
17 β " . .		12 9.3	7 57.01	3 8.62	0.69	− 3.18	+ 9 49 34.3	46.8	− 1.8
	8.9	13 18.9	9 6.80	3 8.61	0.69	− 3.14	+ 9 48 32.0	46.8	− 1.8
	8	14 2.6	9 50.62	3 8.61	0.69	− 3.08	+ 9 47 47.0	46.8	− 1.8
20 d¹ " . .		18 18.6	14 7.32	3 8.61	1.38	− 1.31	+ 18 59 51.2	33.1	− 1.3
21 " . .		19 29.6	15 18.51	3 8.61	0.80	− 4.88	+ 11 18 11.3	44.4	− 1.9
22 φ¹ " . .		20 36.3	16 25.39	3 8.61	2.18	+ 0.81	+ 28 34 23.7	21.3	+ 1.5
30 υ³ " . .		26 0.9	21 50.88	3 8.60	1.85	− 0.44	+ 24 46 47.0	25.8	+ 0.3
32 υ⁴ " . .		27 30.6	23 20.82	3 8.60	1.85	− 0.44	+ 24 47 20.9	25.8	+ 0.3
35 " . .		30 11.5	26 2.16	3 8.60	1.48	− 1.21	+ 20 18 18.4	31.4	− 1.0
43 γ " . .		38 2.8	33 54.76	3 8.60	1.63	− 0.98	+ 22 13 1.4	28.9	− 0.5
52 " . .	7	46 20.3	42 13.63	3 8.60	1.20	− 1.45	+ 16 46 41.6	36.1	− 1.7
	6	50 44.7	46 38.76	3 8.60	1.89	− 0.31	+ 25 14 49.8	25.2	+ 0.5
	7.8	53 21.0	49 15.49	3 8.59	1.85	− 0.44	+ 24 46 21.7	25.8	+ 0.3
69 υ " . .		57 18.0	53 13.14	3 8.59	1.89	− 0.31	+ 25 16 29.8	25.2	+ 0.4
.	8.9	7 59 25.1	55 20.58	3 8.59	1.90	− 0.26	+ 25 26 8.0	25.1	+ 0.5
	8	8 1 58.7	8 57 54.60	3 8.59	2.20	+ 0.92	+ 28 50 37.5	21.1	+ 1.6
	8	4 17.5	9 0 13.78	3 8.59	2.35	+ 1.25	+ 30 24 16.1	19.3	+ 2.0
77 ξ " . .							+ 22 50 50.9	28.2	− 0.2
80 " . .		7 0.2	2 56.93	3 8.59	1.37	− 1.32	+ 18 54 20.4	33.3	− 1.3
82 " . .	6	10 29.2	6 26.50	3 8.59	1.13	− 1.50	+ 15 48 51.4	37.6	− 1.8
	9	11 7.4	7 4.80	3 8.59	1.14	− 1.50	+ 15 52 57.6	37.5	− 1.8
83		14 5.8	10 3.69	3 8.58	1.35	− 1.34	+ 18 35 49.6	33.7	− 1.4
6 Leon. Min.		18 10.1	14 8.66	3 8.58	1.96	− 0.09	+ 26 4 43.7	24.3	+ 0.7
1 κ Leonis . .		19 12.4	15 11.13	3 8.58	2.05	+ 0.23	+ 27 5 5.8	23.1	+ 1.0
2 ω " . .		24 4.1	20 3.63	3 8.58	0.70	− 3.56	+ 9 58 35.6	46.7	− 1.8
b) 4 λ " . .		26 31.2	22 31.13	3 8.58	1.77	− 0.68	+ 23 53 41.9	26.9	0.0
6 h " . .	6						+ 10 38 49.1	45.5	− 1.9
	8.9	30 29.8	26 30.38	3 8.58	1.07	− 1.57	+ 15 0 49.5	38.8	− 1.9
7 " . .		31 12.2	27 12.90	3 8.57	1.09	− 1.54	+ 15 19 19.0	38.4	− 1.9
11 " . .	6.7	33 21.9	29 22.96	3 8.57	1.09	− 1.55	+ 15 18 4.8	38.4	− 1.9
13 " . .		36 18.2	32 19.74	3 8.57	2.03	− 0.15	+ 26 52 12.0	23.4	+ 1.0
16 ψ " . .		39 4.7	35 6.70	3 8.57	1.07	− 1.57	+ 14 59 19.8	38.8	− 1.9
17 ε " . .		40 40.1	36 42.36	3 8.57	1.84	− 0.45	+ 24 44 40.7	25.9	+ 0.3
	8	42 12.2	38 14.71	3 8.57	1.83	− 0.49	+ 24 37 18.6	26.0	+ 0.3
	8.9	46 41.1	42 44.35	3 8.56	1.90	− 0.27	+ 25 23 36.0	25.1	+ 0.5
27 ν " . .		53 41.0	49 45.40	3 8.56	0.96	− 1.72	+ 13 27 23.0	41.1	− 2.0
29 π " . .		55 51.4	51 56.16	3 8.56	0.64	− 1.67	+ 9 3 46.6	48.2	− 1.8
428 Mayer . .		8 59 10.9	55 16.19	3 8.56	0.77	− 4.36	+ 10 56	45.2	− 1.9
30 η Leonis . .		9 2 36.2	9 58 42.05	3 8.56	1.28	− 1.40	+ 17 47 42.6	34.9	− 1.6
Regulus .		3 54.8	10 0 0.86	3 8.56	0.92	− 1.79	+ 13 0 14.5	41.9	− 2.0
34 Leonis . .		7 3.4	3 9.98	3 8.56	1.03	− 1.62	+ 14 24 8.4	39.7	− 2.0
35 " . .		11 34.9	7 42.24	3 8.55	1.83	− 0.51	+ 24 33 10.0	26.2	+ 0.2
36 ζ " . .		11 41.0	7 48.36	3 8.55	1.82	− 0.53	+ 24 28 17.2	26.3	+ 0.1
41 γ " . .		15 4.4	11 12.32	3 8.55	1.53	− 1.15	+ 20 54 48.7	30.8	− 0.8
42 " . .		17 13.6	13 21.87	3 8.55	1.15	− 1.49	+ 16 2 45.0	37.3	− 1.8
44 " . .		20 53.5	17 2.37	3 8.55	0.69	− 3.30	+ 9 51 59.0	47.0	− 1.8
c) 45 " . .		23 17.4	19 26.66	3 8.55	0.77	− 4.27	+ 10 50 49.4	45.3	− 1.9
46 i " . .		27 38.6	23 48.58	3 8.55	1.08	− 1.55	+ 15 13 41.4	38.5	− 1.9
47 ρ " . .		28 27.7	24 37.81	3 8.54	0.73	− 3.95	+ 10 24 8.7	46.0	− 1.8
50 " . .		34 17.1	30 28.17	3 8.54	1.24	− 1.42	+ 17 14 1.4	35.6	− 1.7
35 Sextantis .		39 4.6	35 16.46	3 8.54	0.41	− 0.90	+ 5 52 3.2	54.0	− 1.5
53 l Leonis . .		9 44 53.4	10 41 6.22	− 3 8.54	− 0.83	− 4.75	+ 11 40 21.1	− 0 44.0	− 2.0

1783 APRIL 7 Zero corr. = + 1′ 34″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
d) 123 ζ Tauri . .		4 24 37.5	5 27 51.18	− 3 6.83	− 1.53	− 1.14	+ 20 58 32.5	− 0 30.3	− 0.8
50 ζ Orionis .		29 41.2	32 55.32	3 6.83	+ 0.15	+ 1.08	− 2 4 52.2	1 10.4	− 0.7
58 α " . .		4 43 18.5	46 34.86	3 6.82	− 0.52	− 1.23	+ 7 20 17.8	0 50.6	− 1.6
62 Virginis .		12 7 34.4	13 12 3.74	3 6.52	+ 0.72	+ 1.79	− 10 9 44.8	1 34.9	− 0.4
67 α " . .		12 12 22.8	13 16 52.93	− 3 6.52	+ 0.71	+ 1.79	− 10 1 34.9	− 1 34.6	− 0.4

a Div. assumed as 23; not 24. b Min. of T. I assumed as 26; not 28. c T. III assumed as 23m.; not 22m.
d Min. assumed as 24m.; not 0m.: and ζ assumed as 27° 52′; not 27° 51′.

1783 APRIL 7—Continued Zero corr. = + 1′ 34″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s		° ′ ″	′ ″	″
71 Virginis							+ 11 55 53.1	− 0 43.0	− 2.0
75 "		12 19 52.6	13 24 23.96	− 3 6.51	+ 1.02	+ 1.58	− 14 14 19.5	1 52.1	− 0.4
78 "							+ 4 45 56.6	0 55.4	− 1.4
81 "		24 47.8	29 19.97	3 6.51	+ 0.47	+ 1.87	− 6 45 53.1	1 23.5	− 0.5
	6						− 15 20 2.0	1 57.6	− 0.5
a) 84 o "		30 46.4	35 19.55	3 6.51	− 0.32	− 0.58	+ 4 38 10.2	0 55.6	− 1.4
85 "							− 14 40 4.2	1 54.1	− 0.5
b) 87 "		35 30.4	40 4.33	3 6.50	+ 0.40	+ 1.81	− 5 45 14.3	1 20.4	− 0.5
89 "							− 17 2 19.1	2 7.2	− 0.5
90 P "							− 0 26 19.5	1 6.4	− 0.8
92 "		43 58.8	48 34.12	3 6.50	− 0.15	− 0.12	+ 2 6 21.3	1 0.7	− 1.0
	6.7	47 55.0	52 30.97	3 6.50	− 0.26	− 0.39	+ 3 43 21.8	0 57.3	− 1.3
93 τ "							+ 2 35 21.9	0 59.7	− 1.1
94 "	6	53 19.2	13 57 56.06	3 6.49	+ 0.55	+ 1.88	− 7 51 9.5	1 27.0	− 0.5
96 "		55 57.4	14 0 34.69	3 6.49	0.65	+ 1.83	− 9 18 5.2	31.9	− 0.4
98 κ "		12 59 48.9	4 26.82	3 6.49	0.65	+ 1.83	− 9 15 30.4	31.9	− 0.4
99 ι "		13 3 7.7	7 46.16	3 6.49	0.35	+ 1.73	− 4 57 51.0	18.2	− 0.5
103 υ² "		9 18.0	13 57.47	3 6.48	0.07	+ 0.74	− 0 59 54.0	7.7	− 0.7
105 φ "		15 29.2	20 9.69	3 6.48	0.09	+ 0.83	− 1 15 23.0	8.3	− 0.7
107 μ "		30 2.3	34 45.18	3 6.47	+ 0.33	+ 1.70	− 4 42 45.1	17.3	− 0.5
c) 108 "		13 32 53.4	14 37 36.75	− 3 6.47	− 0.11	− 0.03	+ 1 37 51.6	1 1.8	− 1.0
d) 110 "							+ 2 56 21.2	− 0 59.1	− 1.2

1783 APRIL 8 Zero corr. = + 1′ 41″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
66 α Geminorum		6 16 23.8	7 23 52.01	− 3 5.79	− 2.50	+ 1.39	+ 32 19 25.0	− 0 17.0	+ 2.5
77 κ "		26 58.1	34 28.05	3 5.78	1.83	− 0.41	+ 24 52 56.0	25.5	+ 0.4
78 β "		27 38.8	35 8.86	3 5.78	2.14	+ 0.79	+ 28 30 47.8	21.2	+ 1.5
e) 2 ω¹ Cancri		43 22.7	50 55.34	3 5.77	1.92	− 0.12	+ 25 57 3.8	24.2	+ 0.7
6 "		45 44.7	53 17.73	3 5.77	2.14	+ 0.73	+ 28 21 57.8	21.4	+ 1.4
8 "		48 33.7	56 7.19	3 5.76	0.96	− 1.69	+ 13 42 18.8	40.3	− 2.0
f) 10 μ² "		50 33.4	7 58 7.22	3 5.76	1.61	− 0.99	+ 22 10 42.2	28.7	− 0.5
g) 12 "							+ 14 14 34.5	39.5	− 2.0
15 ψ³ "		6 55 13.5	8 2 48.09	3 5.76	2.30	+ 1.22	+ 30 16 14.2	19.2	+ 1.9
17 β "		7 0 19.3	7 54.73	3 5.76	0.68	− 3.19	+ 9 49 34.3	46.3	− 1.8
18 "		2 23.8	9 59.58	3 5.76	2.09	+ 0.52	+ 27 53 8.0	21.9	+ 1.3
h) 19 λ "							+ 24 40 18.8	25.7	+ 0.3
20 d¹ "		6 27.9	14 4.34	3 5.75	1.36	− 1.31	+ 18 59 50.6	32.8	− 1.3
21 "		7 38.7	15 15.33	3 5.75	0.79	− 4.89	+ 11 18 11.3	44.1	− 1.9
23 φ² "		9 9.2	16 46.08	3 5.75	2.06	+ 0.42	+ 27 36 35.4	22.2	+ 1.2
29 "		12 1.7	19 39.05	3 5.75	1.06	− 1.58	+ 14 53 58.7	38.5	− 1.9
30 υ³ "		14 10.4	21 48.10	3 5.75	1.82	− 0.44	+ 24 46 43.6	25.6	+ 0.3
32 υ⁴ "		15 39.6	23 17.54	3 5.74	1.82	− 0.44	+ 24 47 20.9	25.6	+ 0.3
35 "		18 20.5	25 58.88	3 5.74	1.46	− 1.21	+ 20 18 17.0	31.2	− 1.1
349 Mayer		18 45.4	26 23.85	3 5.74	1.48	− 1.19	+ 20 29 19.0	30.9	− 1.0
i) 37 ε² Cancri		21 52.4	29 31.41	3 5.74	0.70	− 3.90	+ 10 18 21.4	45.7	− 1.8
363 Mayer	6	24 50.6	32 30.05	3 5.74	1.48	− 1.18	+ 20 36 56.8	30.8	− 0.9
43 γ Cancri		26 11.7	33 51.37	3 5.74	1.61	− 0.98	+ 22 13 4.6	28.7	− 0.5
46 "		27 28.2	35 8.08	3 5.73	2.42	+ 1.34	+ 31 26 54.3	18.0	+ 2.3
48 ι¹ "		28 59.5	36 39.63	3 5.73	2.24	+ 1.10	+ 29 31 6.9	20.1	+ 1.8
50 A² "		30 30.4	38 10.78	3 5.73	0.90	− 1.80	+ 12 52 38.8	41.7	− 2.0
52 "	7	34 28.8	42 9.83	3 5.72	1.19	− 1.45	+ 16 46 40.0	35.9	− 1.7
	7	36 50.8	44 32.22	3 5.72	2.08	+ 0.46	+ 27 42 44.2	22.4	+ 1.3
59 σ² Cancri		38 57.2	46 38.97	5 5.72	2.64	+ 1.39	+ 33 42 35.1	15.5	+ 2.9
j) 63 o² "		40 54.0	48 36.12	3 5.72	1.16	− 1.47	+ 16 23 8.7	36.5	− 1.8
69 ν "		45 27.1	53 9.94	3 5.72	1.86	− 0.31	+ 25 16 25.0	25.0	+ 0.4
72 κ "		50 20.5	8 58 4.14	3 5.71	2.33	+ 1.26	+ 30 29 35.3	19.0	+ 2.0
19 Ursæ Maj.	6	7 57 16.1	9 5 0.88	3 5.71	2.82	+ 1.32	+ 35 29 37.2	13.6	+ 3.2
38 Lyncis		8 0 41.1	9 8 26.44	− 3 5.71	− 3.05	+ 1.27	+ 37 41 5.6	− 0 11.3	+ 3.6

a Ob'n of ζ rejected.
b Name assumed as 88 Virginis; not 87 Virginis.
c Div. assumed as 50; not 54.
d ζ assumed as 45° 54′ 47″; not 45° 54′ 27″, and Div. assumed as 48 15 9; not 48 15 8.
e Div. assumed as 24 6 13; not 24 6 11.
f Div. assumed as 37 7 13; not 37 7 3.
g Div. assumed as 36 14 10; not 36 14 9.
h ζ assumed as 24° 10′ 46″; not 24° 11′ 46″.
i Transits over T.s I and II assumed as recorded over T.s II and III.
j T III assumed as 41m. 18s.; not 41m. 28s

1783 APRIL 8—Continued Zero corr. = + 1′ 41″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
40 Lyncis		8 3 10.3	9 10 56.05	− 3 5.71	− 2.79	+ 1.33	+ 35 16 28.4	− 0 13.8	+ 3.1
6 Leon. Min.	6	6 19.2	14 5.47	3 5.70	1.94	− 0.09	+ 26 4 41.7	24.0	+ 0.7
	7	8 36.5	16 23.15	3 5.70	3.02	+ 1.27	+ 37 21 44.0	11.7	+ 3.5
a) 2 ω Leonis		12 13.1	20 0.38	3 5.71	0.70	− 3.56	+ 9 58 35.0	46.1	− 1.8
b) 3 "		12 16.4	20 3.65	3 5.69	0.64	− 1.70	+ 9 6 35.3	47.6	− 1.8
4 λ "		14 40.1	22 27.75	3 5.69	1.75	− 0.68	+ 23 53 37.0	26.7	0.0
6 h "		15 43.5	23 31.32	3 5.69	0.74	− 4.04	+ 10 38 44.8	45.2	− 1.9
7 "		19 21.4	27 9.82	3 5.69	1.08	− 1.54	+ 15 19 14.0	38.1	− 1.9
c) 8 "		20 23.8	28 12.39	3 5.69	1.24	− 1.41	+ 17 22 57.2	35.2	− 1.7
13 Leon. Min.	6	24 54.1	32 43.43	3 5.68	2.88	+ 1.30	+ 36 3 4.2	13.1	+ 3.3
	7.8	26 28.6	34 18.19	3 5.68	2.84	+ 1.32	+ 35 40 52.0	13.5	+ 3.2
17 ε Leonis		28 49.1	36 39.07	3 5.68	1.82	− 0.45	+ 24 44 35.0	25.7	+ 0.3
18 "		30 0.3	37 50.46	3 5.68	0.89	− 2.02	+ 12 46 57.9	41.9	− 2.0
19 "	7	31. 3.9	38 54.23	3 5.68	0.88	− 2.90	+ 12 32 48.0	42.2	− 2.0
	7.8	33 6.9	40 57.57	3 5.68	1.88	− 0.24	+ 25 32 28.0	24.7	+ 0.6
22 g "		34 49.9	42 40.85	3 5.68	1.88	− 0.28	+ 25 23 31.2	25.0	+ 0.5
27 ν "		41 49.7	49 41.80	3 5.67	0.94	− 1.72	+ 13 27 12.7	40.8	− 2.0
29 π "		44 0.7	51 53.16	3 5.67	0.63	− 1.68	+ 9 3 44.6	47.8	− 1.8
	8.9	47 3.2	54 56.16	3 5.67	0.64	− 1.82	+ 9 15 17.5	47.5	− 1.8
30 η "		50 44.8	58 38.37	3 5.66	1.26	− 1.40	+ 17 47 38.0	34.6	− 1.6
Regulus		52 3.7	9 59 57.49	3 5.66	0.91	− 1.79	+ 13 0 10.4	41.5	− 2.0
d) 34 Leonis		55 12.5	10 3 6.81	3 5.66	1.02	− 1.62	+ 14 24 1.4	40.3	− 2.0
33 λ Ursæ Maj.		8 59 11.8	7 6.76	3 5.66	3.81	+ 1.68	+ 43 57 47.0	4.9	+ 4.9
39 Leonis		9 0 30.3	8 25.48	3 5.66	1.77	− 0.60	+ 24 9 59.9	26.4	0.0
40 "		3 8.0	11 3.60	3 5.65	1.48	− 1.19	+ 20 32 44.0	30.9	− 0.9
27 Leon. Min.	6	5 45.9	13 41.93	3 5.65	2.76	+ 1.34	+ 34 58 20.0	14.3	+ 3.1
28 "	6	6 50.2	14 46.41	3 5.65	2.74	+ 1.35	+ 34 47 4.4	14.4	+ 3.1
30 "	4.5	8 37.8	16 34.31	3 5.65	2.76	+ 1.34	+ 34 52 10.0	14.3	+ 3.1
	7	13 14.2	21 11.47	3 5.64	3.02	+ 1.27	+ 37 21 28.2	11.7	+ 3.5
34 "	5	16 14.6	24 12.36	3 5.64	2.88	+ 1.30	+ 36 4 29.2	13.1	+ 3.3
35 "	5.6	19 2.3	27 0.52	3 5.64	3.02	+ 1.27	+ 37 25 13.0	11.7	+ 3.5
38 "	6	21 50.5	29 49.18	3 5.64	3.19	+ 1.28	+ 39 0 35.4	10.0	+ 3.9
	4.5	25 8.7	33 7.92	3 5.64	2.54	+ 1.40	+ 32 48 7.2	16.6	+ 2.6
42 "	5	28 54.4	36 54.24	3 5.63	2.45	+ 1.38	+ 31 47 47.5	17.7	+ 2.4
53 l "		33 3.2	41 3.72	3 5.63	0.82	− 4.75	+ 11 40 16.0	43.6	− 2.0
54 "		38 57.9	46 59.39	3 5.62	1.92	− 0.14	+ 25 52 47.8	24.4	+ 0.7
59 c "		44 36.0	52 38.42	3 5.62	0.50	− 1.21	+ 7 14 52.2	50.9	− 1.6
63 χ "		48 55.2	56 58.33	3 5.62	0.59	− 1.49	+ 8 29 17.2	48.9	− 1.7
65 "		50 53.9	10 58 57.36	3 5.61	0.22	− 0.30	+ 3 7 0.0	0 58.9	− 1.2
	8	56 7.8	11 4 12.12	3 5.61	0.06	+ 0.14	+ 0 45 13.0	1 4.0	− 0.9
69 "		57 41.7	11 5 46.28	− 3 5.61	− 0.07	+ 0.06	+ 1 5 43.4	1 3.3	− 0.9
73 κ "							+ 24 15 11.9	− 0 26.3	+ 0.1

1783 APRIL 9 Zero corr. = + 1′ 41″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
e) α Persei		2 1 17.7	3 12 0.56	− 3 4.49	− 4.55	+ 3.26	+ 49 2 41.8	− 0 0.2	+ 5.6
87 α Tauri		3 15 41.1	4 26 36.18	3 4.40	1.14	− 1.49	+ 16 2 25.8	36.6	− 1.8
f) 112 β "		4 4 38.3	5 15 41.42	3 4.35	− 2.14	+ 0.74	+ 28 23 7.6	0 21.2	+ 1.3
46 ε Orionis		17 11.3	28 16.48	3 4.33	+ 0.10	+ 0.86	− 1 21 53.4	1 8.0	− 0.7
58 α "		4 35 23.7	5 46 31.87	3 4.32	− 0.51	− 1.23	+ 7 20 13.9	0 50.3	− 1.6
13 μ Geminorum		5 1 44.7	6 12 57.20	3 4.30	1.64	− 0.91	+ 22 35 19.2	28.1	− 0.3
24 γ "		17 2.7	28 17.71	3 4.28	− 1.18	− 1.47	+ 16 33 4.1	0 36.1	− 1.7
Sirius		5 27 20.3	6 38 37.00	3 4.27	+ 1.16	+ 1.67	− 16 25 40.6	2 3.0	− 0.5
66 α Geminorum		6 12 25.9	7 23 50.01	3 4.22	− 2.50	+ 1.39	+ 32 19 30.0	0 16.9	+ 2.5
Procyon		19 37.0	31 2.29	3 4.21	0.40	− 0.87	+ 5 45 13.0	53.1	− 1.5
g) 78 β Geminorum		23 41.3	35 7.26	3 4.21	2.14	+ 0.79	+ 28 30 51.2	21.1	+ 1.5
2 ω¹ Cancri		39 24.9	50 53.44	3 4.20	1.92	− 0.12	+ 25 57 3.0	24.1	+ 0.7
6 "		41 47.4	7 53 16.33	3 4.20	2.14	+ 0.73	+ 28 21 58.5	21.3	+ 1.4
h) 15 ψ² "		51 16.2	8 2 46.69	3 4.19	2.30	+ 1.22	+ 30 16 10.2	19.1	+ 1.9
17 β "		6 56 22.4	8 7 53.73	− 3 4.18	− 0.68	− 3.19	+ 9 49 30.3	− 0 46.2	− 1.8

a Transit over T. II assumed as recorded over T. III.
b T. III assumed as 40s.; not 46s.
c ζ assumed as 31° 28′ 9″; not 31° 28′ 29″.
d ζ assumed as 34° 27′ 5″; not 34° 27′ 15″, and Div. assumed as 36 11 15; not 36 12 0.
e ζ assumed as 89° 48′ 22″; not 89° 48′ 12″, and Div. assumed as 95 12 11; not 95 12 10.
f ζ assumed as 20° 27′ 58″; not 20° 17′ 58″; and Div. assumed as 21 13 4; not 21 12 4.
g T. II assumed as 23m.; not 21m.
h T. II assumed as 16s.2; not 56s.2.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q'
1783 APRIL 9—Continued									Zero corr. = + 1′ 41″.4.
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
31 Lyncis .		6 59 31.6	8 11 3.45	— 3 4.18	— 3.79	+ 1.66	+ 43 50 33.2	— 0 5.0	+ 4.9
32 " . .		7 10 57.3	22 31.03	3 4.17	2.99	+ 1.27	+ 37 8 4.6	11.9	+ 3.5
33 " . .		12 17.7	23 51.65	3 4.16	2.99	+ 1.27	+ 37 7 33.6	11.9	+ 3.5
1 Leon. Min.		16 15.3	27 49.90	3 4.16	2.62	+ 1.40	+ 33 31 18.8	15.7	+ 2.8
3 " . .		7 17 53.0	8 29 27.87	3 4.15	— 2.61	+ 1.40	+ 33 27 23.1	0 15.8	+ 2.7
67 α Virginis		12 4 28.7	13 16 50.65	3 3.87	+ 0.70	+ 1.79	— 10 1 42.6	1 34.5	— 0.4
	6	10 22.2	22 45.12	3 3.87	0.13	+ 1.04	— 1 56 19.6	10.5	— 0.7
76 h " .							— 9 2 50.3	31.7	— 0.4
80 l^3 " . .		14 55.1	27 18.77	3 3.86	+ 0.30	+ 1.63	— 4 17 41.2	1 17.0	— 0.6
	6.7	17 26.0	29 50.08	3 3.86	— 0.24	— 0.36	+ 3 28 49.2	0 58.5	— 1.2
	8	20 6.8	32 31.31	3 3.86	— 0.22	— 0.33	+ 3 15 36.0	59.0	— 1.2
84 o Virginis .		22 52.0	35 16.96	3 3.85	— 0.32	— 0.58	+ 4 37 38.0	0 56.1	— 1.4
	6.7	26 44.0	39 9.60	3 3.84	+ 0.38	+ 1.80	— 5 37 11.4	1 20.6	— 0.5
	6	32 48.5	45 15.10	3 3.84	— 1.26	— 1.40	+ 17 47 14.9	0 34.8	— 1.5
	7	12 36 52.0	13 49 19.27	— 3 3.83	— 1.20	— 1.44	+ 16 56 6.0	— 0 36.0	— 1.7
1783 APRIL 12									Zero corr. = + 1′ 38″.9.
Venus . .		1 34 9.3	2 56 37.36	— 3 0.42	— 1.18	— 1.44	+ 16 49 30.0	— 0 35.8	— 1.7
		8 25 7.3	9 48 42.87	3 0.16	1.51	— 1.11	+ 21 10 40.9	30.0	— 0.8
a)		30 9.0	53 45.39	3 0.15	1.65	— 0.86	+ 22 58 4.2	27.7	— 0.2
b) Regulus .		36 15.2	9 59 52.60	3 0.15	0.90	— 1.79	+ 13 0 11.9	41.3	— 2.0
37 Leonis . .		44 26	10 8 5.24	3 0.15	1.03	— 1.59	+ 14 47 8.1	38.6	— 1.9
	8	45 15.6	8 54.47	3 0.15	1.50	— 1.13	+ 21 4 7.2	30.1	— 0.8
40 " . .		47 19.3	10 58.51	3 0.14	1.46	— 1.19	+ 20 32 40.0	30.8	— 0.9
c)	7	48 20.4	11 59.77	3 0.14	1.47	— 1.18	+ 20 36 10.0	30.7	— 0.9
d) 449 Mayer .	6	56 35.2	20 15.93	3 0.14	1.08	— 1.53	+ 15 25 41.8	37.7	— 1.9
46 ι Leonis . .		8 59 59.0	23 40.29	3 0.14	1.06	— 1.55	+ 15 13 34.4	38.0	— 1.9
48 " . .		9 2 50.2	26 31.96	3 0.14	0.55	— 1.38	+ 8 3 0.3	0 49.2	— 1.7
		10 31.6	34 14.62	3 0.13	0.13	— 0.10	+ 1 58 45.0	1 0.9	— 1.0
	8	13 37.8	37 21.33	3 0.13	0.15	— 0.12	+ 2 7 59.0	1 0.6	— 1.0
60 b " . .		30 1.7	53 47.92	3 0.11	1.52	— 1.10	+ 21 19 9.4	0 29.9	— 0.7
52 Leon. Min.	6.7	34 40.2	10 58 27.18	3 0.11	1.96	+ 0.10	+ 26 41 2.4	23.3	+ 0.9
67 Leonis . .	6	36 25.4	11 0 12.67	3 0.11	1.89	— 0.16	+ 25 48 26.9	24.3	+ 0.6
	6.7	39 36.1	3 23.89	3 0.11	1.09	— 1.52	+ 15 33 28.0	37.5	— 1.8
70 θ " . .		42 6.5	5 54.70	3 0.11	1.16	— 1.46	+ 16 35 35.5	36.1	— 1.7
73 n " . .		43 46.2	7 34.67	3 0.10	1.01	— 1.61	+ 14 28 11.7	39.2	— 2.0
78 ι " . .		51 53.6	15 43.41	3 0.10	0.81	— 4.69	+ 11 42 16.5	43.4	— 2.0
81 " . .		53 31.3	17 21.38	3 0.10	1.24	— 1.41	+ 17 37 38.4	34.6	— 1.6
85 " . .		57 36.5	21 27.25	3 0.09	1.16	— 1.46	+ 16 35 28.8	36.1	— 1.7
	7.8	9 59 24.7	23 15.75	3 0.09	1.34	— 1.32	+ 18 55 35.0	32.9	— 1.3
	7.8	10 0 43.6	24 34.86	3 0.09	1.36	— 1.30	+ 19 10 40.0	32.6	— 1.3
90 " . .		2 37.0	26 28.57	3 0.09	1.26	— 1.39	+ 17 58 27.0	34.2	— 1.5
	6	13 10.4	37 3.70	3 0.09	1.08	— 1.53	+ 15 26 53.7	37.7	— 1.9
94 β " . .		17 9.7	41 3.66	3 0.08	1.10	— 1.50	+ 15 45 54.4	37.2	— 1.8
		10 20 29.7	11 44 24.21	— 3 0.08	— 1.54	— 1.09	+ 21 35 40.0	— 0 29.3	— 0.6
1783 APRIL 13									Zero corr. = + 1′ 40″.4.
77 ξ Cancri . .		7 32 31.0	8 59 54.48	— 2 59.49	— 1.62	— 0.87	+ 22 53 35.0	— 0 27.8	— 0.2
79 " . .	6	33 30.5	9 0 54.14	2 59.49	1.62	— 0.88	+ 22 50 47.0	27.8	— 0.2
80 " . .	7.8	35 23.7	2 47.65	2 59.49	1.32	— 1.32	+ 18 54 15.0	33.0	— 1.3
82 " . .		38 52.6	6 17.12	2 59.49	1.09	— 1.50	+ 15 48 47.9	37.1	— 1.8
83 " . .		42 29.2	9 54.32	2 59.49	1.30	— 1.35	+ 18 35 46.4	33.3	— 1.4
6 Leon. Min.		46 33.5	13 59.29	2 59.49	1.88	— 0.08	+ 26 4 45.7	23.9	+ 0.7
41 Lyncis .		49 58.5	17 24.85	2 59.49	4.06	+ 2.58	+ 46 30 54.2	2.3	+ 5.4
7 Leon. Min.		53 9.1	20 35.97	2 59.48	2.66	+ 1.37	+ 34 34 31.4	14.5	+ 3.0
e) 10 " . .	4.5	56 27.6	23 55.01	2 59.48	2.94	+ 1.27	+ 37 19 36.2	11.6	+ 3.5
f) 11 " . .		7 58 10.2	9 25 37.86	— 2 59.48	— 2.88	+ 1.29	+ 36 45 29.9	— 0 12.2	+ 3.4

a T. III assumed as 30m.; not 31m.
b Div. assumed as 38; not 37.
c T. III assumed as 48m. 45s.; not 48m. 43s.
d Div. assumed as 35 10 8; not 35 14 6.
e Div. assumed as 12 4; not 12 14.
f T. III assumed as 58m. 39s.; not 58m. 49s.

1783 APRIL 13—Continued Zero corr. = + 1′ 40″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
12 Leon. Min.		8 2 21.3	9 29 49.68	− 2 59.48	− 2.82	+ 1.30	+ 36 16 54.0	− 0 12.7	+ 3.3
13 " . .		5 8.1	32 36.94	2 59.48	2.80	+ 1.30	+ 36 3 8.4	13.0	+ 3.3
16 ψ Leonis . .		7 27.7	34 56.92	2 59.48	1.03	− 1.57	+ 14 59 15.2	38.4	− 1.9
20 " .		13 12.5	40 42.66	2 59.47	1.57	− 0.99	+ 22 9 42.8	28.6	− 0.5
26 " . .	6.7	21 54.1	49 25.69	2 59.47	1.12	− 1.48	+ 16 13 48.8	36.5	− 1.8
431 Mayer . .	7.6	29 23.6	56 56.42	2 59.46	1.16	− 1.45	+ 16 47 12.8	35.7	− 1.7
Regulus .		32 18.2	9 59 51.50	2 59.46	0.89	− 1.79	+ 13 0 9.6	41.2	− 2.0
33 λ Ursæ Maj.		39 25.7	10 7 0.17	2 59.46	3.71	+ 1.68	+ 43 57 49.0	4.9	+ 4.9
41 γ Leonis . .		43 27.7	11 2.83	2 59.46	1.47	− 1.15	+ 20 54 38.7	30.3	− 0.8
28 Leon. Min.		47 4.0	14 39.72	2 59.46	2.68	+ 1.35	+ 34 47 6.8	14.4	+ 3.1
a) 30 " . .	5	48 52.2	16 28.21	2 59.45	2.68	+ 1.34	+ 34 52 10.0	14.3	+ 3.1
b)	7.8	51 42.3	19 18.78	2 59.45	0.31	− 0.59	+ 4 39 1.2	55.4	− 1.4
31 Sextantis .	7	54 42.5	22 19.48	2 59.45	0.22	− 0.32	+ 3 14 45.4	58.3	− 1.2
c)	7.8	8 59 18.1	26 55.84	2 59.45	0.22	− 0.34	+ 3 18 19.6	58.9	− 1.2
457 Mayer . .	7	9 3 46.1	31 24.57	2 59.45	0.67	− 3.51	+ 9 57 5.0	46.1	− 1.8
	7	6 19.3	33 58.19	2 59.45	0.78	− 5.66	+ 11 28 10.4	43.6	− 1.9
52 κ Leonis . .		10 18.6	37 58.15	2 59.44	1.06	− 1.54	+ 15 19 1.4	37.9	− 1.9
53 l " . .		13 17.5	40 57.54	2 59.44	0.79	− 4.75	+ 11 40 18.1	43.4	− 2.0
54 " . .		19 12.7	46 53.71	2 59.44	1.86	− 0.14	+ 25 52 47.8	24.3	+ 0.7
59 c " . .		24 50.4	52 32.34	2 59.43	0.49	− 1.21	+ 7 14 51.2	0 50.5	− 1.6
62 g " . .		27 48.5	55 30.93	2 59.43	0.07	+ 0.05	+ 1 9 7.4	1 2.6	− 0.9
65 " . .		31 8.5	10 58 51.48	2 59.43	0.21	− 0.30	+ 3 6 58.6	0 58.5	− 1.2
	6.7	35 40.3	11 3 24.03	2 59.43	1.06	− 1.52	+ 15 33 27.4	37.6	− 1.8
70 θ " . .		38 9.7	5 53.84	2 59.43	1.14	− 1.46	+ 16 35 34.1	36.1	− 1.7
53 ξ Ursæ Maj.		41 52.1	9 36.85	2 59.43	2.48	+ 1.40	+ 32 43 20.2	16.6	+ 2.7
78 ι Leonis . .		47 58.3	15 44.05	2 59.43	0.80	− 4.69	+ 11 42 16.4	43.4	− 2.0
85 " . .		53 40.3	21 26.98	2 59.42	1.14	− 1.47	+ 16 35 26.8	36.2	− 1.7
90 Leonis . .		9 58 40.1	26 27.59	2 59.42	1.24	− 1.39	+ 17 58 27.0	0 34.3	− 1.5
91 ν " . .		10 1 3.4	28 51.28	2 59.42	0.02	+ 0.25	+ 0 21 36.5	1 4.6	− 0.8
	7.8	4 29.6	32 18.04	2 59.42	0.13	− 0.12	+ 2 8 24.2	1 0.6	− 1.0
	6.7	9 13.7	37 2.92	2 59.42	1.06	− 1.53	+ 15 26 52.2	0 37.8	− 1.9
	6.7	12 42.4	40 32.19	2 59.41	1.06	− 1.52	+ 15 28 11.0	37.8	− 1.9
94 β Leonis . .		13 13.2	41 3.07	2 59.41	1.08	− 1.51	+ 15 45 53.8	37.3	− 1.8
6 A Virginis .		19 7.5	46 58.34	2 59.41	0.64	− 2.56	+ 9 37 57.0	46.8	− 1.8
7 b " . .		10 24 0.8	11 51 52.45	− 2 59.41	− 0.32	− 0.63	+ 4 50 53.7	− 0 55.2	− 1.4

1783 APRIL 14 Zero corr. = + 1′ 40″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
66 α Geminorum		5 52 40.5	7 23 44.13	− 2 58.64	− 1.43	+ 1.39	+ 32 19 32.6	− 0 17.1	− 2.5
d) Procyon .		5 59 51.4	30 56.21	2 58.64	0.39	− 0.87	+ 5 45 12.4	53.7	− 1.5
78 β Geminorum		6 3 56.6	7 35 2.08	2 58.63	2.09	+ 0.79	+ 28 30 48.8	21.3	+ 1.5
17 β Cancri . .		36 36.4	8 7 47.25	2 58.62	0.66	− 3.18	+ 9 49 33.0	46.7	− 1.8
39 " . .		6 59 24.0	30 38.59	2 58.61	1.46	− 1.17	+ 20 44 32.0	30.8	− 0.9
43 γ " . .		7 2 29.7	33 44.80	2 58.61	1.57	− 0.98	+ 22 13 1.2	28.8	− 0.5
48 ι¹ " . .		5 17.6	36 33.16	2 58.61	1.18	+ 1.10	+ 29 31 8.6	20.2	− 1.8
370 Mayer . .		8 28.6	39 44.68	2 58.60	0.91	− 1.74	+ 13 19 8.4	41.1	− 2.0
371 " . .		10 7.7	41 24.05	2 58.60	1.31	− 1.33	+ 18 46 46.8	33.3	− 1.4
61 Cancri . .		16 29.7	47 47.10	2 58.60	2.31	+ 1.31	+ 31 1 51.8	18.5	+ 2.2
62 ο¹ " . .		16 53.0	48 10.47	2 58.60	1.11	− 1.49	+ 16 7 24.0	37.0	− 1.8
63 ο² " . .		17 11.1	48 28.62	2 58.60	1.13	− 1.47	+ 16 23 7.0	36.6	− 1.8
e) 69 ν " . .		21 44.5	53 2.78	2 58.60	1.81	− 0.31	+ 25 16 28.5	25.2	+ 0.4
	6.7	27 50.7	8 59 9.87	2 58.59	1.07	− 1.52	+ 15 33 25.0	37.8	− 1.8
79 " . .		29 34.5	9 0 54.06	2 58.59	1.62	− 0.88	+ 22 50 49.5	28.2	− 0.2
81 π " . .		32 5.9	3 25.87	2 58.59	1.10	− 1.50	+ 15 50 33.2	37.5	− 1.8
f) 398 Mayer . .	6.7	37 47.4	9 8.31	2 58.59	0.85	− 3.45	+ 12 23 2.6	42.7	− 2.0
	8.9	41 16.2	12 37.68	2 58.59	1.37	− 1.26	+ 19 38 54.5	32.3	− 1.2
	8	44 14.3	15 36.27	2 58.59	1.29	− 1.33	+ 18 36 49.6	33.7	− 1.4
2 ω Leonis . .		48 30.6	19 53.27	2 58.59	0.68	− 3.56	+ 9 58 34.1	46.4	− 1.8
4 λ " . .		50 57.7	22 20.77	2 58.58	1.70	− 0.68	+ 23 53 39.9	26.9	0.0
410 Mayer . .	7	54 51.0	26 14.71	2 58.58	0.92	− 1.70	+ 13 35 42.8	40.8	− 2.0
g) 11 Leonis . .		7 57 48.2	9 29 12.39	− 2 58.58	− 1.05	− 1.54	+ 15 18 6.6	− 0 38.3	− 1.9

a T II assumed as 48m.; not 49m.
b Min. assumed as 51m. 52m.; not 52m. 53m.
c ζ assumed as 45° 32′ 41″.5; not 45° 32′ 21″.5, and Div. assumed as 49 9 5; not 48 9 3.
d Micr. corr. assumed as −5; not +5, and transits over T.s II and III assumed as recorded over T.s I and II.
e ζ assumed as 23°; not 33°.
f ζ assumed as 36° 28′ 2″.7; not 36° 2′ 28″.7.
g ζ assumed as 33° 32′ 59″; not 32° 32′ 49″, and Div. assumed as 35 12 9; not 35 12 8.

1783 APRIL 14—Continued Zero corr. = + 1′ 40″. 7.

Name	Mag.	T	App. sid. time	Clock corr.	ϰ tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a) 16 ψ Leonis . .		8 3 31.5	9 34 56.63	— 2 58.57	— 1.03	— 1.57	+ 14 59 17.2	— 0 38.8	— 1.9
18 " . .		6 17.9	37 43.49	2 58.57	0.88	— 2.02	+ 12 47 0.0	42.1	— 2.0
19 " . .		7 21.4	38 47.16	2 58.57	0.85	— 2.90	+ 12 32 46.5	42.4	— 2.0
23 " . .		10 52.7	42 19.04	2 58.57	0.96	— 1.65	+ 14 3 18.2	40.1	— 2.0
423 Mayer . .	7.8	14 11.4	45 38.28	2 58.57	0.61	— 1.68	+ 9 4 29.9	48.0	— 1.8
10 Sextantis .	6.7	16 31.5	47 58.76	2 58.57	0.68	— 3.48	+ 9 56 14.0	46.6	— 1.8
27 υ Leonis . .		18 7.3	49 34.82	2 58.57	0.92	— 1.72	+ 13 27 19.6	41.0	— 2.0
29 π " . .		20 18.3	51 46.18	2 58.57	— 0.61	— 1.68	+ 9 3 43.9	0 48.0	— 1.8
	8	23 37.2	55 5.62	2 58.57	+ 0.61	+ 1.84	— 9 4 34.5	1 31.7	— 0.4
b) 430 Mayer . .	9	25 9.1	56 37.77	2 58.57	— 0.61	— 1.68	+ 9 1 8.5	0 48.0	— 1.8
30 ϰ Leonis . .		27 2.2	58 31.18	2 58.56	1.23	— 1.40	+ 17 47 41.3	34.8	— 1.5
Regulus .		28 21.4	9 59 50.60	2 58.56	0.88	— 1.79	+ 13 0 13.6	41.7	— 2.0
c) 34 Leonis . .		31 29.9	10 2 59.62	2 58.56	0.99	— 1.62	+ 14 24 6.0	39.5	— 2.0
438 Mayer . .	8	34 17.1	5 47.28	2 58.56	1.19	— 1.42	+ 17 11 22.0	35.6	— 1.7
439 " . .	8	35 58.2	7 28.65	2 58.56	1.31	— 1.32	+ 18 47 39.5	33.4	— 1.3
441 " . .		38 20.2	9 51.05	2 58.56	0.93	— 1.69	+ 13 41 2.5	40.6	— 2.0
445 " . .	7.8	42 19.8	13 51.31	2 58.56	0.68	— 3.64	+ 10 2 3.5	46.4	— 1.8
44 Leonis . .		45 20.7	16 52.70	2 58.56	0.67	— 3.21	+ 9 51 56.5	46.8	— 1.8
d) 46 ι " . .		52 5.8	23 38.91	2 58.55	1.05	— 1.56	+ 15 13 37.7	38.4	— 1.9
48 " . .		54 56.5	26 30.08	2 58.55	0.54	— 1.37	+ 8 2 59.8	49.7	— 1.7
455 Mayer . .	9	57 35.1	29 9.12	2 58.55	1.27	— 1.35	+ 18 22 52.5	34.0	— 1.5
50 Leonis . .	7.8	8 58 43.8	30 18.01	2 58.55	1.19	— 1.42	+ 17 14 1.2	35.6	— 1.7
458 Mayer . .	6	9 3 31.7	35 6.70	2 58.55	0.39	— 0.90	+ 5 51 59.8	53.9	— 1.5
35 Sextantis .	8.9	5 39.7	37 15.05	2 58.55	0.58	— 1.53	+ 8 38 10.0	48.8	— 1.8
37 " . .	8.7	7 27.8	39 3.45	2 58.54	0.51	— 1.26	+ 7 28 16.3	50.6	— 1.6
58 d Leonis . .		20 44.7	52 22.53	2 58.54	0.32	— 0.61	+ 4 45 55.4	55.9	— 1.4
467 Mayer . .	7	24 10.0	55 48.39	2 58.54	0.32	— 0.61	+ 4 47 25.4	55.9	— 1.4
65 Leonis . .		27 12.2	10 58 51.09	2 58.53	— 0.21	— 0.30	+ 3 7 5.2	0 59.2	— 1.2
66 " . .		29 29.3	11 1 8.57	2 58.53	+ 0.01	+ 0.40	— 0 10 11.8	1 6.4	— 0.8
70 θ " . .		34 13.4	5 53.28	2 58.53	— 1.14	— 1.46	+ 16 35 40.4	0 36.5	— 1.7
74 φ " . .		36 56.6	8 37.09	2 58.53	+ 0.17	+ 1.20	— 2 28 38.9	1 12.0	— 0.7
Double .	7	39 39.3	11 20.23	2 58.53	+ 0.09	+ 0.53	— 0 28 18.8	7.2	— 0.8
	6.7	43 30.6	15 12.16	2 58.53	— 0.09	+ 0.01	+ 1 18 37.3	1 3.2	— 0.9
80 Leonis . .		9 46 0.9	11 17 42.87	2 58.52	0.34	— 0.68	+ 5 2 21.0	0 55.4	— 1.4
17 Virginis .	6	10 42 41.0	12 14 32.28	2 58.49	0.44	— 1.04	+ 6 29 51.4	52.6	— 1.5
e)	7.8	46 5.1	17 56.94	2 58.49	0.21	— 0.32	+ 3 13 51.2	58.9	— 1.2
	8	50 0.3	21 52.79	2 58.49	1.09	— 1.50	+ 15 49 53.6	37.6	— 1.8
20 " . .		53 17.0	25 10.03	2 58.49	0.78	— 5.73	+ 11 28 39.2	44.2	— 1.9
	6.7	10 57 20.0	29 13.70	2 58.49	0.68	— 3.56	+ 9 58 34.1	46.6	— 1.8
	7	11 1 5.6	32 59.92	2 58.49	— 0.68	— 3.60	+ 10 0 23.3	0 46.6	— 1.8
	7	4 8.1	36 2.92	2 58.48	+ 0.11	+ 0.96	— 1 39 42.4	1 10.1	— 0.7
35 Virginis .	6.7	7 54.5	39 49.94	2 58.48	0.32	— 0.61	+ 4 44 46.2	0 56.0	— 1.4
	6	11 40.3	43 36.36	2 58.48	— 0.28	— 0.50	+ 4 13 30.0	57.1	— 1.3
43 δ Virginis .		15 44.9	47 41.61	2 58.48	— 0.30	— 0.56	+ 4 33 54.0	0 56.4	— 1.4
44 κ " . .		19 31.3	51 28.63	2 58.48	+ 0.18	+ 1.24	— 2 38 54.0	1 12.7	— 0.7
48 " . .	6.7	23 45.8	55 43.83	2 58.47	0.17	+ 1.20	— 2 30 3.5	12.2	— 0.7
49 g " . .		27 32.4	12 59 31.05	2 58.47	0.64	+ 1.81	— 9 34 52.4	1 34.1	— 0.4
54 " . .		32 50.9	13 4 50.42	2 58.47	1.23	+ 1.58	— 17 39 49.8	2 12.2	— 0.6
	6	41 33.4	13 34.35	2 58.47	0.91	+ 1.58	— 13 16 30.6	1 49.0	— 0.3
67 a " . .		44 43.9	16 45.37	2 58.46	+ 0.68	+ 1.79	— 10 1 41.6	1 35.6	— 0.4
71 " . .		49 32.4	21 34.66	2 58.46	— 0.81	— 4.35	+ 11 55 49.5	0 43.6	— 2.0
78 " . .		11 54 7.5	26 10.51	2 58.46	0.32	— 0.61	+ 4 45 51.4	56.1	— 1.4
f) 84 o " . .		12 3 7.0	35 11.49	2 58.46	— 0.31	— 0.57	+ 4 37 37.7	0 56.4	— 1.4
87 " . .		6 31.5	38 36.55	2 58.46	+ 1.15	+ 1.65	— 16 45 40.2	2 7.2	— 0.5
92 " . .		16 19.3	48 25.96	2 58.45	— 0.14	— 0.12	+ 2 6 22.0	1 1.6	— 1.0
	7.8	12 20 15.5	13 52 22.81	— 2 58.45	— 0.25	— 0.39	+ 3 43 18.0	— 0 58.0	— 1.3

a T. III assumed as 3m. 55s.; not 3m. 35s.
b ζ assumed as 39°; not 29°.
c T. III assumed as 53s. 5; not 48s. 5.
d T. I assumed as 42s. 5; not 32s. 5.
e T. II assumed as 46m.; not 45m.
f Div. assumed as 47 2 12; not 47 3 12.

1783 APRIL 16 Zero corr. = + 1′ 39″.7.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a) Venus		1 38 49.6	3 17 4.65	− 2 57.39	− 1.26	− 1.35	+ 18 21 3.6	− 0 34.0	− 1.5
58 α Orionis		4 7 45.2	5 46 24.72	2 57.32	0.49	− 1.23	+ 7 20 15.6	51.1	− 1.6
24 γ Geminorum		49 24.3	6 28 10.66	2 57.30	− 1.13	− 1.47	+ 16 33 2.4	0 36.6	− 1.7
b) Sirius		4 59 42.0	6 38 30.05	2 57.30	+ 1.12	+ 1.67	− 16 25 35.3	2 4.8	− 0.5
78 β Geminorum		5 56 3.2	7 35 0.51	2 57.27	− 2.06	+ 0.79	+ 28 30 50.0	0 21.5	+ 1.5
17 β Cancri		6 28 43.2	8 7 45.88	2 57.25	0.66	− 3.19	+ 9 49 34.8	47.0	− 1.8
31 θ "		43 7.8	22 12.85	2 57.24	1.29	− 1.32	+ 18 47 51.5	33.6	− 1.3
43 γ "		54 35.6	33 42.53	2 57.23	1.56	− 0.99	+ 22 13 0.1	29.0	− 0.5
47 δ "		6 56 13.2	35 20.40	2 57.23	1.30	− 1.32	+ 18 55 17.8	33.4	− 1.3
55 ρ² "		7 3 29.7	42 38.09	2 57.23	2.12	+ 1.03	+ 29 7 33.1	20.8	+ 1.6
43 α¹ "		7 56.7	47 5.82	2 57.23	0.84	− 3.31	+ 12 25 39.0	42.8	− 2.0
64 σ³ "		10 1.0	49 10.46	2 57.23	2.48	+ 1.40	+ 33 13 37.9	16.2	+ 2.7
	7.8	18 8.7	57 19.49	2 57.22	1.10	− 1.48	+ 16 6 50.0	37.2	− 1.8
78 "	7	20 40.7	8 59 51.91	2 57.22	1.26	− 1.36	+ 18 19 11.7	34.3	− 1.5
19 Ursæ Maj.		25 40.3	9 4 52.32	2 57.22	2.71	+ 1.32	+ 35 29 38.0	13.7	+ 3.2
38 Lyncis		29 5.3	8 17.88	2 57.22	2.94	+ 1.27	+ 37 41 9.1	11.5	+ 3.6
	6	31 7.8	10 20.72	2 57.22	3.08	+ 1.28	+ 39 4 16.8	10.0	+ 3.9
	6	34 42.2	13 55.71	2 57.22	2.91	+ 1.27	+ 37 28 58.0	11.7	+ 3.5
	6.7	37 0.8	16 14.69	2 57.22	2.90	+ 1.27	+ 37 21 44.6	11.8	+ 3.5
	7	40 31.3	19 45.77	2 57.21	2.61	+ 1.37	+ 34 28 0.0	14.9	+ 2.9
7 Leonis Min.	6	41 19.0	20 33.60	2 57.21	2.62	+ 1.36	+ 34 34 32.4	14.8	+ 3.0
9 "	7	43 53.7	23 8.72	2 57.21	2.90	+ 1.27	+ 37 24 45.0	11.8	+ 3.5
10 "	4.5	44 37.6	23 52.74	2 57.21	2.90	+ 1.27	+ 37 19 34.1	11.8	+ 3.5
11 "	6	46 20.2	25 35.62	2 57.21	2.84	+ 1.29	+ 36 45 28.2	12.5	+ 3.5
	6.7	50 2.3	29 18.33	2 57.21	2.78	+ 1.30	+ 36 11 20.0	13.1	+ 3.3
12 "	6	50 31.5	29 47.61	2 57.21	2.78	+ 1.30	+ 36 16 58.4	13.0	+ 3.3
13 "	6	53 18.3	32 34.87	2 57.21	2.77	+ 1.30	+ 36 3 9.0	13.2	+ 3.3
15 "	6	7 58 14.3	37 31.68	2 57.20	4.07	+ 2.75	+ 46 59 42.0	1.9	+ 5.4
c)	6.7	8 2 50.3	42 8.44	2 57.20	3.07	+ 1.28	+ 38 53 57.5	10.2	+ 3.9
	7.8	8 30.8	47 49.87	2 57.20	1.07	− 1.51	+ 15 44 10.4	37.9	− 1.8
29 π Leonis		12 24.4	51 44.11	2 57.20	0.61	− 1.68	+ 9 3 45.5	48.3	− 1.8
431 Mayer	7.8	17 33.7	56 54.26	2 57.20	1.15	− 1.45	+ 16 47 15.3	36.4	− 1.7
Regulus		20 28.6	9 59 49.64	2 57.19	0.88	− 1.79	+ 13 0 12.9	42.0	− 2.0
34 Leonis	7	23 36.7	10 2 58.25	2 57.19	0.98	− 1.62	+ 14 24 7.4	39.8	− 2.0
438 Mayer	8	26 24.2	5 46.21	2 57.19	1.17	− 1.42	+ 17 11 23.2	35.8	− 1.7
d) 39 Leonis		28 55.4	8 17.82	2 57.19	1.70	− 0.60	+ 24 10 3.8	26.7	0.0
41 γ "		31 37.6	11 0.46	2 57.19	1.45	− 1.15	+ 20 54 44.2	30.8	− 0.8
28 Leonis Min.		35 15.0	14 38.46	2 57.19	2.64	+ 1.35	+ 34 47 15.0	14.6	+ 3.1
30 "	6	37 2.4	16 26.15	2 57.19	2.65	+ 1.34	+ 34 52 16.1	14.6	+ 3.1
33 "	5	43 5.3	22 30.04	2 57.18	2.51	+ 1.40	+ 33 27 50.0	16.0	+ 2.7
35 "		47 26.1	26 51.55	2 57.18	2.91	+ 1.27	+ 37 25 18.5	11.7	+ 3.5
50 Leonis	7	50 52.0	30 18.01	2 57.18	1.18	− 1.42	+ 17 14 1.2	35.7	− 1.7
	8	55 42.1	35 8.90	2 57.18	1.34	− 1.28	+ 19 25 44.0	32.9	− 1.3
51 m "	7	8 58 15.5	37 42.72	2 57.17	1.38	− 1.23	+ 20 0 41.6	32.0	− 1.1
	6	9 2 22.7	41 50.60	2 57.17	1.73	− 0.52	+ 24 31 44.5	26.3	+ 0.2
e)	7	6 25.3	45 53.86	2 57.17	1.99	+ 0.07	+ 26 37 8.0	23.4	+ 0.9
f) 48 Leonis Min.	7	8 18.5	47 47.37	2 57.17	− 1.91	+ 0.06	+ 26 37 59.6	0 23.7	+ 0.9
	7.8	12 26.3	51 55.85	2 57.17	+ 0.15	+ 1.15	− 2 19 18.7	1 12.0	− 0.7
	7	15 2.2	54 32.19	2 57.17	+ 0.16	+ 1.16	− 2 21 27.2	1 12.3	− 0.7
	9.10	18 51.7	10 58 22.32	2 57.16	− 1.51	− 1.06	+ 21 37 59.5	0 29.9	− 0.6
68 δ Leonis		26 2.7	11 5 34.50	2 57.16	− 1.51	− 1.05	+ 21 41 18.2	0 29.9	− 0.6
74 φ "		29 3.6	8 35.90	2 57.16	+ 0.16	+ 1.20	− 2 28 41.4	1 12.5	− 0.7
79 "		36 20.0	15 53.49	2 57.16	− 0.17	− 0.21	+ 2 35 1.0	1 0.7	− 1.1
84 τ "		40 11.9	19 46.03	2 57.15	0.27	− 0.45	+ 4 2 11.0	0 57.7	− 1.3
86 "	6	42 35.5	22 10.03	2 57.15	1.35	− 1.27	+ 19 35 1.2	32.7	− 1.2
	8	45 35.3	25 10.32	2 57.15	0.30	− 0.56	+ 4 32 47.0	56.7	− 1.4
89 "	6	46 39.9	26 15.10	2 57.15	0.28	− 0.50	+ 4 15 3.5	57.3	− 1.3
61 Ursæ Maj.		52 58.9	32 35.14	2 57.15	2.70	+ 1.32	+ 35 24 3.4	13.9	+ 3.1
g) 62 "	7	55 31.3	35 7.95	2 57.15	2.46	+ 1.40	+ 32 56 33.0	16.6	+ 2.7
3 ν Virginis		9 58 6.1	37 43.18	2 57.14	0.52	− 1.31	+ 7 43 41.2	50.7	− 1.7
4 ξ² Virginis	5.6	10 0 10.2	11 39 47.61	− 2 57.14	− 0.63	− 2.04	+ 9 26 2.2	− 0 47.9	− 1.8

a ζ assumed as 30° 30′ 0.″5; not 30° 30′ 40.″5.
b T. III assumed as 6.2s.; not 16.2s., and Div. assumed as 69; not 59.
c Div. assumed as 10 9 11; not 10 9 13.
d Transits over T.s I and II assumed as recorded over T.s II and III, and T. I assumed as 30s.5; not 28s.5.
e ζ assumed as 22°; not 21°.
f Name assumed to belong to preceding star.
g Min. assumed as 55m.; not 56m.

1783 APRIL 16—Continued Zero corr. = + 1′ 39″.7.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	95 o Leonis . .	7	10 7 53.0	11 47 31.67	− 2 57.14	− 1.15	− 1.44	+ 16 50 6.0	− 0 36.5	− 1.7
	8 π Virginis .		13 6.5	52 46.03	2 57.13	0.52	− 1.32	+ 7 48 32.0	50.7	− 1.7
	497 Mayer . .	7	16 0.5	55 40.51	2 57.13	0.45	− 1.09	+ 6 45 23.4	0 52.6	− 1.6
	500 " . .	7	20 13.0	11 59 53.70	2 57.13	0.12	− 0.07	+ 1 49 17.0	1 2.6	− 1.0
	10 r Virginis .		21 53.1	12 1 34.07	2 57.13	− 0.20	− 0.30	+ 3 6 13.2	0 59.9	− 1.2
a)		8	30 38.0	10 20.41	2 57.13	+ 0.51	+ 1.88	− 7 42 2.0	1 28.0	− 0.5
	14 " . .	9	31 25.3	11 7.84	2 57.13	+ 0.51	+ 1.88	− 7 42 47.0	1 28.0	− 0.5
	17 " . .		34 47.6	14 30.69	2 57.13	− 0.43	− 1.04	+ 6 29 54.6	0 53.1	− 1.5
		7	38 22.8	18 6.48	2 57.12	1.17	− 1.43	+ 17 2 52.8	36.1	− 1.7
		7.8	10 42 52.1	12 22 36.52	2 57.12	− 0.73	− 4.32	+ 10 54 9.0	0 45.5	− 1.9
b)			11 22 36.3	13 2 27.24	2 57.10	+ 0.59	+ 1.85	− 8 56 50.0	1 32.4	− 0.4
	57 " . .		27 21.5	7 13.23	2 57.10	1.29	+ 1.46	− 18 46 27.8	2 20.9	− 0.7
		4	32 56.0	12 48.65	2 57.10	1.26	+ 1.51	− 18 20 18.4	2 17.8	− 0.6
	67 a " . .		36 50.6	16 43.88	2 57.10	0.67	+ 1.79	− 10 1 36.0	1 36.5	− 0.4
	72 l¹ " . .		42 10.6	22 4.76	2 57.09	0.36	+ 1.78	− 5 21 8.0	21.0	− 0.5
	74 l² " . .		43 44.1	23 38.51	2 57.09	0.34	+ 1.76	− 5 8 15.0	20.3	− 0.5
	80 l³ " . .		47 17.7	27 12.69	2 57.09	0.28	+ 1.63	− 4 17 34.6	1 17.9	− 0.6
		6.7	51 20.2	31 15.85	2 57.09	1.04	+ 1.62	− 15 19 59.6	2 0.0	− 0.5
	83 " . .		11 55 49.9	35 46.29	2 57.09	1.02	+ 1.61	− 15 4 39.8	1 58.6	− 0.5
	89 " . .		12 1 5.5	41 2.75	2 57.08	+ 1.16	+ 1.64	− 17 2 22.7	2 9.8	− 0.5
		9.10	6 14.1	46 12.20	2 57.08	− 0.28	− 0.50	+ 4 13 5.0	0 57.7	− 1.3
	92 " . .		8 26.1	48 24.56	2 57.08	− 0.14	− 0.12	+ 2 6 18.7	1 2.1	− 1.0
		6.7	11 34.6	51 33.58	2 57.08	+ 0.17	+ 1.20	− 2 29 41.8	12.9	− 0.7
	93 τ " . .		13 37.4	53 36.73	2 57.08	− 0.17	− 0.21	+ 2 35 20.1	1.0	− 1.1
	94 " . .	7	17 46.3	13 57 46.31	2 57.07	+ 0.52	+ 1.88	− 7 51 12.9	28.8	− 0.5
	96 " . .	5	20 24.6	14 0 25.04	2 57.07	0.62	+ 1.83	− 9 18 9.5	33.9	− 0.4
		8	22 33.4	2 34.19	2 57.07	0.33	+ 1.73	− 4 56 55.0	19.9	− 0.5
	98 κ " . .	5	24 16.7	4 17.77	2 57.07	0.62	+ 1.83	− 9 15 34.9	33.7	− 0.4
	99 ι " . .		27 35.2	7 36.81	2 57.07	0.33	+ 1.73	− 4 57 55.3	20.1	− 0.5
	2 Libræ . .		34 40.8	14 43.58	2 57.07	0.72	+ 1.74	− 10 42 59.9	39.2	− 0.3
	104 Virginis .		38 55.6	18 59.08	2 57.07	+ 0.34	+ 1.76	− 5 8 18.0	1 20.3	− 0.5
	25 ρ Bootis . .		45 24.6	25 29.15	2 57.06	− 2.31	+ 1.33	+ 31 18 18.4	0 18.5	+ 2.3
	28 σ " . .		48 9.4	28 14.40	2 57.06	2.25	+ 1.27	+ 30 40 10.8	19.2	+ 2.1
	29 π " . .		53 28.4	33 34.27	2 57.06	1.19	− 1.42	+ 17 20 11.0	35.9	− 1.7
	34 " . .	6	12 56 48.1	36 54.52	2 57.06	1.97	− 0.36	+ 27 26 0.0	23.0	+ 1.1
c)		7	13 0 26.5	40 33.52	2 57.05	1.38	− 1.23	+ 19 56 30.0	32.4	− 1.1
		7	2 26.5	42 33.85	2 57.05	1.41	− 1.20	+ 20 23 54.0	31.8	− 1.0
	37 ξ " . .		4 17.8	44 25.45	2 57.05	1.38	− 1.23	+ 19 59 15.6	32.4	− 1.1
		7	6 26.6	46 34.60	2 57.05	1.38	− 1.23	+ 20 0 49.2	32.4	− 1.1
		6.7	9 57.7	50 6.28	2 57.05	1.18	− 1.42	+ 17 15 1.2	36.1	− 1.7
d)		7.8	12 5.6	52 14.55	2 57.05	1.77	− 0.37	+ 25 1 31.0	25.9	+ 0.4
		7	14 1.2	54 10.45	2 57.05	1.60	− 0.87	+ 22 53 25.2	28.6	− 0.2
e)		8	16 6.2	14 56 15.85	2 57.04	1.30	− 1.32	+ 18 48 50.8	34.0	− 1.4
	45 c " . .		20 37.5	15 0 47.84	2 57.04	1.83	− 0.19	+ 25 41 54.6	25.1	+ 0.6
		6.7	21 59.4	2 9.96	2 57.04	1.85	− 0.13	+ 25 55 22.5	24.8	+ 0.7
		6	25 3.2	5 14.26	2 57.04	1.36	− 1.25	+ 19 46 47.0	32.6	− 1.2
	49 δ " . .		29 34.2	9 46.00	2 57.04	2.57	+ 1.38	+ 34 6 15.1	15.4	+ 2.9
	1 o Cor. Bor. .		33 57.7	14 10.22	2 57.04	2.23	+ 1.24	+ 30 23 7.9	19.6	+ 2.0
	2 η " . .		37 2.2	17 15.22	2 57.04	2.29	+ 1.31	+ 31 3 13.1	18.9	+ 2.2
	3 β " . .		41 40.0	21 53.78	2 57.03	2.18	+ 1.17	+ 29 50 8.6	0 20.2	+ 1.9
f)	38 γ Libræ . .		13 46 6.8	15 26 21.32	− 2 57.03	+ 0.95	+ 1.58	− 14 3 5.7	− 1 54.5	− 0.4

1783 APRIL 18 Zero corr. = + 1′ 42″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	Venus .		1 40 44.8	3 26 53.27				+ 19 3 50.2	− 0 33.0	− 1.3
	67 α Virginis .		11 28 56.7	13 16 41.80	− 2 54.99	+ 0.67	+ 1.79	− 10 1 48.0	1 35.2	− 0.4
g)	70 " . .		33 3.2	20 49.00	2 54.99	− 1.01	− 1.58	+ 14 55 21.0	0 38.8	− 1.9
		7.8	37 1.8	24 48.23	2 54.98	+ 0.49	+ 1.88	− 7 19 58.0	1 25.8	− 0.5
		6.7	43 25.8	31 13.28	2 54.98	1.03	+ 1.62	− 15 20 12.0	1 58.4	− 0.5
		7	11 50 31.1	13 38 19.74	− 2 54.97	+ 1.23	+ 1.52	− 18 9 27.2	− 2 14.7	− 0.6

a ζ assumed as 56° 33′ 7″; not 56° 32′ 47″.
b Min. assumed as 22m.; not 23m. Transits discordant.
c ζ assumed as 28° 54′ 35″; not 28° 54′ 25″.
d T. III assumed as 12m. 31s.; not 12m. 41s.
e ζ assumed as 30° 2′ 16″.5; not 30° 2′ 46″.5, and transits over T.s II and III as recorded over T.s I and II.
f ζ assumed as 62° 54′ 13″; not 62° 54′ 43″.
g T. III assumed as 33m. 27s.; not 33m. 37s.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q'
	1783 APRIL 18—Continued								Zero corr. = + 1′ 42″.4.	
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a)	89 Virginis .	5.6	11 53 12.3	13 41 1.38	− 2 54 97	+ 1.15	+ 1.64	− 17 2 30.0	− 2 8.0	− 0.5
	92 " . .		12 0 32.5	48 22.78	2 54.97	− 0.13	− 0.12	+ 2 6 15.2	1 1.1	− 1.0
b)	93 τ " . .		5 43.4	53 34.54	2 54.96	0.17	− 0.21	+ 2 35 14.8	1 0.2	− 1.1
		7	9 58.0	13 57 49.84	2 54.96	1.91	+ 0.14	+ 26 50 51.5	0 23.3	+ 1.0
		7	13 25.3	14 1 17.71	2 54.96	1.78	+ 0.29	+ 25 19 5.6	25.2	+ 0.5
	14 Boötis . .	6	18 45.4	6 38.69	2 54.96	0.94	− 1.65	+ 13 57 51.6	40.3	− 2.0
c)	Arcturus .		20 52.4	8 46.03	2 54.95	− 1.39	− 1.21	+ 20 17 44.2	0 31.4	− 1.0
d)		7	27	15				− 15 6 17.0	1 57.3	− 0.5
		7	35 45.8	23 41.88	2 54.94	+ 1.60	+ 1.88	− 23 1 58.9	2 53.9	− 1.5
e)	3 Libræ . .	6	41 49.8	29 46.88	2 54.94	1.69	+ 2.23	− 24 3 30.6	3 5.1	− 1.8
	4 " . .	6	45 39.5	33 37.21	2 54.94	1.69	+ 2.22	− 24 2 27.2	3 5.1	− 1.8
		6	48 37.9	36 36.10	2 54.94	1.54	+ 1.66	− 22 12 31.0	2 46.1	− 1.2
	9 α² " . .							− 15 7 41.6	1 57.6	− 0.5
	14 " . .		12 59 46.2	47 46.23	2 54.93	1.72	+ 2.42	− 24 31 53.0	3 10.3	− 2.0
f)	19 δ " . .		13 4 18.3	52 19.07	2 54.93	0.51	+ 1.88	− 7 39 14.4	1 26.8	− 0.5
	20 γ Libræ . .							− 24 23 43.6	3 8.9	− 2.0
		6.7	12 6.3	0 8.34	2 54.92	1.60	+ 1.92	− 23 7 30.2	2 55.1	− 1.5
		7	15 30.3	3 32.90	2 54.92	1.62	+ 1.93	− 23 9 40.1	55.4	− 1.5
	595 Mayer . .	7.8	18 41.4	6 44.52	2 54.92	1.49	+ 1.55	− 21 34 9.2	40.4	− 0.9
	33 ξ Libræ . .	7	32 9.2	20 14.53	2 54.91	1.13	+ 1.66	− 16 40 29.5	6.0	− 0.5
g)	606 Mayer . .		34 59.4	23 5.20	2 54.90	1.29	+ 1.45	− 18 54 34.0	2 19.8	− 0.7
	38 γ Libræ . .		13 38 13.5	15 26 19.83	− 2 54.90	+ 0.95	+ 1.58	− 14 3 6.6	− 1 52.1	− 0.4
	1783 APRIL 19								Zero corr. = + 1′ 44″.6.	
	Venus . .		1 41 45.2	3 31 50.39				+ 19 24 35.8	− 0 32.1	− 1.2
	Sirius . .		4 47 51.6	6 38 27.36	− 2 54.44	+ 1.10	+ 1.67	− 16 25 45.8	2 3.4	− 0.5
	Procyon .		5 40 8.3	7 30 52.65	2 54.41	− 0.38	− 0.87	+ 5 45 9.2	0 53.4	− 1.5
	78 β Geminorum		5 44 12.5	7 34 57.52	2 54.41	2.04	+ 0.79	+ 28 30 48.0	21.2	+ 1.5
h)	43 γ Cancri . .		6 42 45.5	8 33 40.14	2 54.41	1.53	− 0.98	+ 22 13 1.6	28.7	− 0.5
i)	47 δ " . .		6 44 23.4	8 35 18.31	2 54.41	1.28	− 1.32	+ 18 55 13.8	33.0	− 1.3
j)	413 Mayer . .	7	7 39 23.8	9 30 27.74	2 54.35	0.95	− 1.62	+ 14 15 50.8	39.4	− 2.0
	14 o Leonis . .		41 30.6	32 34.89	2 54.35	0.72	− 4.29	+ 10 51 10.0	44.8	− 1.9
		8	44 46.7	35 51.53	2 54.35	1.70	− 0.54	+ 24 26 35.0	26.0	+ 0.1
		7	46 54.7	37 59.88	2 54.35	1.72	− 0.49	+ 24 37 12.6	25.8	+ 0.2
k)		8	49 41.5	40 47.14	2 54.35	1.79	− 0.24	+ 25 32 25.7	24.6	+ 0.6
	22 g Leonis . .	6.5	51 24.2	42 30.12	2 54.34	1.76	− 0.28	+ 25 23 33.7	24.9	+ 0.5
	423 Mayer . .	8.9	54 28.2	45 34.62	2 54.34	0.60	− 1.68	+ 9 4 25.4	47.8	− 1.8
	10 Sextantis .	8	56 48.2	47 55.00	2 54.34	0.66	− 3.48	+ 9 56 10.0	46.3	− 1.8
		9	7 58 56.1	50 3.25	2 54.34	0.80	− 4.27	+ 11 58 3.0	43.0	− 2.0
		9	8 3 37.3	54 45.22	2 54.34	0.61	− 1.82	+ 9 15 14.0	47.4	− 1.8
		8	6 46.7	9 57 55.14	2 54.34	0.92	− 1.67	+ 13 48 55.5	40.2	− 2.0
	437 Mayer . .	7	14 20.4	10 5 30.08	2 54.33	1.53	− 0.98	+ 22 13 13.0	28.7	− 0.5
l)	439 " . .		16 13.7	7 23.69	2 54.33	1.28	− 1.32	+ 18 47 37.6	33.3	− 1.3
	41 γ Leonis . .		19 47.1	10 57.67	2 54.33	1.44	− 1.15	+ 20 54 40.2	30.3	− 0.8
	445 Mayer . .		22 35.6	13 46.63	2 54.33	0.66	− 3.64	+ 10 2 1.0	46.1	− 1.8
	446 " . .		24 39.7	15 51.07	2 54.33	− 0.77	− 4.76	+ 11 39 41.3	0 43.4	− 2.0
		7	27 5.9	18 17.67	2 54.33	+ 0.35	+ 1.78	− 5 20 15.0	1 19.1	− 0.5
	30 Sextantis .	6	30 55.7	22 8.10	2 54.32	− 0.03	+ 0.22	+ 0 27 24.2	1 4.3	− 0.8
m)		11	33 47.0	24 59.87	2 54.32	0.54	− 1.41	+ 8 10 45.0	0 49.1	− 1.7
	48 Leonis . .		35 13.2	26 26.30	2 54.32	0.53	− 1.38	+ 8 2 55.0	49.3	− 1.7
		10	41 1.3	32 15.35	2 54.32	1.36	− 1.23	+ 19 57 58.0	31.6	− 1.1
	52 κ " . .	7	46 38.6	37 53.57	2 54.32	1.03	− 1.54	+ 15 18 57.9	38.0	− 1.9
		8	50 18.9	41 34.47	2 54.31	1.90	+ 0.12	+ 26 45 50.0	23.2	+ 1.0
		7.8	53 25.4	44 41.48	2 54.31	1.94	+ 0.33	+ 27 20 8.0	22.6	+ 1.1
	48 Leonis Min.	7	54 35.2	45 51.49	2 54.31	1.88	+ 0.06	+ 26 37 4.2	23.4	+ 0.9
	50 " .	7.8	56 27.4	47 43.99	2 54.31	1.88	+ 0.06	+ 26 37 53.3	23.4	+ 0.9
		8	8 58 41.9	49 58.86	2 54.31	1.42	− 1.17	+ 20 45 29.4	30.7	− 0.9
	59 c Leonis . .		9 1 9.8	10 52 27.17	− 2 54.31	− 0.48	− 1.21	+ 7 14 50.0	− 0 50.8	− 1.6

a ζ assumed as 65° 53′; not 65° 52′.
b ζ assumed as 46° 15′ 50″; not 46° 15′ 20″.
c Min. assumed as 20m.; not 19m.
d Transits too discordant to be used.
e ζ assumed as 72° 54′ 35″; not 72° 54′ 25″, and Div. assumed as 77 12 5; not 77 12 3.
f Min. assumed as 3m. and 4m.; not 2m. and 3m.
g ζ assumed as 67° 45′ 39″.5; not 67° 45′ 19″.5.
h and i Hour assumed as 6h.; not 5h.
j Div. assumed as 31 14 5; not 31 14 13.
k ζ assumed as 23° 18′; not 23° 13′.
l Div. assumed as 32 1 0; not 32 5 0.
m ζ assumed as 40° 40′ 20″; not 40° 39′ 50″.

1783 APRIL 19—Continued Zero corr. = + 1′ 44″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8.9	9 4 4.2	10 55 22.05	— 2 54.31	— 0.58	— 1.56	+ 8 43 51.2	— 0 48.2	— 1.8
63 χ Leonis . .		5 29.2	10 56 47.28	2 54.31	0.56	— 1.49	+ 8 29 16.0	48.7	— 1.7
	6	14 23.5	11 5 43.04	2 54.30	0.61	— 1.79	+ 9 13 36.8	47.6	— 1.8
	7	20 40.0	12 0.57	2 54.30	1.26	— 1.34	+ 18 28 33.2	33.7	— 1.5
81 " . .		25 54.2	17 15.63	2 54.30	1.20	— 1.41	+ 17 37 33.1	34.8	— 1.6
84 τ " . .		28 21.4	19 43.23	2 54.30	— 0.26	— 0.45	+ 4 1 59.0	0 56.9	— 1.3
480 Mayer . .		32 26.3	23 48.80	2 54.29	+ 0.34	+ 1.77	— 5 16 49.8	1 19.2	— 0.5
	8	34 7.3	25 30.08	2 54.29	+ 0.35	+ 1.78	— 5 21 3.0	19.3	— 0.5
91 υ Leonis . .		37 22.5	28 45.81	2 54.29	— 0.02	+ 0.25	+ 0 21 32.4	1 4.8	— 0.8
484 Mayer . .		42 35.0	33 59.16	2 54.29	0.38	— 0.92	+ 5 55 51.4	0 53.2	— 1.5
	7.8	45 48.3	37 12.99	2 54.29	0.54	— 1.42	+ 8 13 5.5	49.2	— 1.7
94 β Leonis . .		49 32.2	40 57.50	2 54.28	1.06	— 1.51	+ 15 45 50.8	0 37.4	— 1.8
491 Mayer . .		9 55 47.9	47 14.23	2 54.28	0.14	— 0.15	+ 2 17 27.5	1 0.6	— 1.0
8 π Virginis .		10 1 16.1	52 43.34	2 54.28	— 0.52	— 1.31	+ 7 48 23.2	0 49.9	— 1.7
a) 95 " . .		12 6 22.1	13 58 9.89	2 54.22	+ 0.54	+ 1.88	— 8 16 45.6	1 28.6	— 0.5
b) 98 κ " . .		12 25.9	14 4 14.69	2 54.21	0.61	+ 1.83	— 9 15 33.6	31.9	— 0.4
99 ι " . .		15 44.3	7 33.63	2 54.21	+ 0.32	+ 1.73	— 4 58 7.8	1 18.6	— 0.5
	7.8	28 17.1	20 8.49	2 54.20	— 1.06	— 1.51	+ 15 42 50.0	0 37.6	— 1.8
	8	32 31.2	24 23.29	2 54.20	1.26	— 1.34	+ 18 35 23.5	33.7	— 1.4
29 π Bootis . .		41 37.2	33 30.78	2 54.20	1.17	— 1.42	+ 17 20 0.2	35.3	— 1.7
34 " . .	6	44 57.5	36 51.63	2 54.20	1.95	+ 0.36	+ 27 25 52.4	22.6	— 1.1
	8	48 36.6	40 31.33	2 54.19	1.36	— 1.23	+ 19 56 27.6	31.8	— 1.1
37 ξ " . .		52 26.9	44 22.26	2 54.19	1.36	— 1.23	+ 19 59 5.4	31.8	— 1.1
	7	54 34.5	46 30.21	2 54.19	1.37	— 1.23	+ 20 0 40.0	31.8	— 1.1
	7	12 57 2.0	48 58.32	2 54.19	1.03	— 1.54	+ 15 18 38.2	38.1	— 1.9
c)	7.8	13 0 48.2	52 44.94	2 54.19	1.06	— 1.51	+ 15 40 57.5	37.8	— 1.8
d)	7	3 30.9	14 55 28.09	2 54.19	1.14	— 1.43	+ 16 53 20.0	35.9	— 1.7
45 c " . .		8 47.0	15 0 45.04	2 54.18	1.80	— 0.19	+ 25 41 48.0	24.7	+ 0.6
	6	10 8.9	2 7.16	2 54.18	1.82	— 0.13	+ 25 55 15.0	24.4	+ 0.7
	8	13 26.2	5 25.00	2 54.18	1.60	— 0.83	+ 23 6 56.0	27.8	— 0.2
	7	17 18.3	9 17.74	2 54.18	1.86	0.00	+ 26 25 37.0	23.8	+ 0.8
	7.8	20 2.1	12 1.99	2 54.18	2.31	+ 1.37	+ 31 36 39.0	17.9	+ 2.4
1 o Cor. Borealis		22 7.6	14 7.83	2 54.18	2.18	+ 1.24	+ 30 23 2.0	19.3	+ 2.0
2 η " . .		25 11.5	17 12.24	2 54.18	2.26	+ 1.31	+ 31 3 8.4	18.5	+ 2.2
3 β " . .		29 49.5	21 51.00	2 54.17	2.15	+ 1.17	+ 29 50 3.3	19.9	+ 1.9
12 τ Serpentis .		33 7.0	25 9.04	2 54.17	— 1.12	— 1.45	+ 16 46 46.4	0 36.1	— 1.7
612 Mayer . .		37 15.7	29 18.42	2 54.17	+ 0.92	+ 1.57	— 13 47 18.7	1 50.8	— 0.4
e)	6	45 53.3	37 57.44	2 54.17	2.00	+ 4.08	— 28 3 52.5	4 2.2	— 3.8
1 b Scorpii . .	4	48 45.1	40 49.71	2 54.16	1.75	+ 2.65	— 25 3 14.6	3 16.8	— 2.2
f) 2 A¹ " . .		51 23.7	43 28.75	2 54.16	1.72	+ 2.47	— 24 38 34.2	3 11.6	— 2.0
	6.7	55 10.2	47 15.86	2 54.16	0.94	+ 1.58	— 14 10 53.0	1 52.9	— 0.4
7 δ " . .		13 58 18.7	50 24.88	2 54.16	1.51	+ 1.62	— 21 58 32.8	2 44.1	— 1.2
	6	14 1 40.4	53 47.13	2 54.16	1.68	+ 2.26	— 24 5 30.2	3 5.5	— 1.8
	6	6 33.5	58 41.03	2 54.16	1.60	+ 1.89	— 23 4 26.6	2 54.3	— 1.5
8 β " . .		3 36.6	15 55 43.65	2 54.16	1.30	+ 1.42	— 19 11 19.6	2 22.0	— 0.7
	6	11 12.4	16 3 20.70	2 54.15	2.38	+ 5.28	— 32 22 19.0	5 54.5	— 7.6
		15 48.0	7 57.06	2 54.15	2.61	+ 5.30	— 34 50 6.2	7 55.7	—10.0
644 Mayer . .		21 44.1	13 54.14	2 54.15	2.09	+ 4.55	— 29 8 13.0	4 23.2	— 4.6
Antares .		26 49.0	18 59.87	2 54.15	1.82	+ 3.12	— 25 54 30.0	3 27.6	— 2.6
13 ζ Ophiuchi .		14 35 55.2	16 28 7.56	— 2 54.14	+ 0.67	+ 1.79	— 10 7 7.0	— 1 35.5	— 0.4

1783 APRIL 21 Zero corr. = + 1′ 40″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
g) 81 Virginis .		11 29 32.0	13 29 6.84	— 2 52.72	+ 0.44	+ 1.87	— 6 46 3.7	— 1 23.6	— 0.5
82 m " . .		33 31.8	33 7.31	2 52.72	0.49	+ 1.88	— 7 36 33.8	26.4	— 0.5
83 " . .		36 5.7	35 41.63	2 52.72	0.99	+ 1.61	— 15 4 44.5	1 56.8	— 0.5
89 " . .		41 22.2	40 59.00	2 52.72	+ 1.13	+ 1.64	— 17 2 28.4	2 7.4	— 0.5
92 " . .		11 48 42.8	13 48 20.81	— 2 52.71	— 0.13	— 0.12	+ 2 6 18.0	— 1 0.9	— 1.0

a ζ assumed as 57° 7′ 50″; not 57° 7′ 20″.
b ζ assumed as 58° 6′ 39″; not 58° 6′ 19″, and Div. assumed as 61 15 12; not 61 15 13.
c ζ assumed as 33° 10′ 2″; not 33° 9′ 42″, and Div. assumed as 35 6 1; not 35 5 15.
d ζ assumed as 31° 57′; not 31° 52′.
e Div. assumed as 82 0 11; not 82 11 0.
f Transits over T.s II and III assumed as recorded over T.s I and II.
g T. II assumed as 29m. 32s.; not 29m. 26s., and T. III assumed as 29m.55s.; not 29m.52s.

1783 APRIL 21—Continued Zero corr. = + 1′ 40″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	11 52 38.9	13 52 17.56	— 2 52.71	— 0.24	— 0.39	+ 3 43 15.0	— 0 57.6	— 1.3
a)	6	11 59 27.0	13 59 6.78	2 52.71	1.20	— 1.39	+ 17 59 29.2	34.4	— 1.5
12 d Bootis . .		12 3 47.1	14 3 27.59	2 52.71	1.81	— 0.09	+ 26 6 4.2	24.1	+ 0.7
14 " . .	6	6 56.2	6 37.21	2 52.71	0.92	— 1.65	+ 13 57 50.3	40.1	— 2.0
Arcturus .		9 2.0	8 43.35	2 52.71	1.37	— 1.21	+ 20 17 45.5	31.3	— 1.1
18 Bootis . .	6	12 2.1	11 43.94	2 52.71	0.92	— 1.65	+ 13 59 36.8	40.0	— 2.0
b)	6.7	16 37.3	16 19.89	2 52.70	1.83	— 0.03	+ 26 18 13.8	23.9	+ 0.7
22 f " . .	5	19 36.8	19 19.88	2 52.70	1.36	— 1.22	+ 20 11 18.8	31.4	— 1.1
25 ρ " . .		25 40.7	25 24.78	2 52.70	2.25	+ 1.33	+ 31 18 17.2	18.2	+ 2.3
28 σ " . .		28 24.7	28 9.23	2 52.70	2.19	— 1.27	+ 30 40 8.5	18.9	+ 2.1
c)	6.7	31 21.7	31 6.71	2 52.70	1.28	— 1.30	+ 19 13 45.0	32.7	— 1.3
29 π " . .		33 44.6	33 30.00	2 52.70	1.15	— 1.42	+ 17 20 11.2	35.2	— 1.7
34 " . .	6	37 4.3	36 50.25	2 52.70	1.92	+ 0.36	+ 27 25 58.4	22.5	+ 1.1
d) 37 ξ " . .		44 33.5	44 20.68	2 52.70	1.35	— 1.23	+ 19 59 12.2	31.7	— 1.1
	7	48 33.7	48 21.54	2 52.69	2.21	+ 1.30	+ 30 55 35.0	18.6	+ 2.2
e)	8	51 2.7	50 50.95	2 52.69	1.82	— 0.06	+ 26 10 38.0	24.0	+ 0.7
	7.8	52 27.4	52 15.88	2 52.69	1.80	— 0.14	+ 25 53 58.0	24.3	+ 0.7
	7	57 37.8	57 26.53	2 52.69	1.96	+ 0.53	+ 27 54 43.0	22.0	+ 1.3
43 ψ . .		12 58 16.3	14 58 5.74	2 52.69	1.94	+ 0.48	+ 27 46 35.0	22.1	+ 1.3
f) 46 b . .		13 2 8.9	15 1 58.98	2 52.69	— 1.89	+ 0.24	+ 27 6 58.0	0 22.9	+ 1.0
27 β Libræ . .		13 8 23.2	15 8 14.30	— 2 52.69	+ 0.55	+ 1.87	— 8 34 40.6	— 1 29.6	— 0.4

1783 APRIL 25 Zero corr. = + 1′ 40″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
g) 44 Leonis . .		8 1 56.6	10 16 43.57	— 2 50.63	— 0.63	— 3.31	+ 9 51 50.0	— 0 46.8	— 1.8
h) 449 Mayer . .		5 18.4	20 5.93	2 50.63	1.01	— 1.53	+ 15 25 44.2	37.7	— 1.9
46 ι Leonis . .		8 42.3	23 30.39	2 50.63	1.00	— 1.56	+ 15 13 33.4	38 5	— 1.9
	7	11 58.4	26 47.03	2 50.63	0.21	— 0.33	+ 3 18 25.0	58.8	— 1.2
	8.9	15 14.7	30 3.87	2 50.63	0.99	— 1.56	+ 15 7 44.5	38.5	— 1.9
40 Leonis Min.		19 9.3	33 59.11	2 50.62	1.91	+ 0.36	+ 27 26 14.8	22.6	+ 1.1
42 "	5	21 48.8	36 39.05	2 50.62	2.28	+ 1.38	+ 31 47 53.4	17.7	+ 2.5
i) 17 Ursæ Maj. .		35 17.9	50 10.37	2 50.62	3.27	+ 1.39	+ 41 33 29.4	7.4	+ 4.4
51 " .		40 25.5	55 18.81	2 50.61	3.02	+ 1.29	+ 39 22 52.6	9.6	+ 3.9
	8	40 38.2	10 55 31.55	2 50.61	3.02	+ 1.29	+ 39 23 20.0	9.6	+ 3.9
67 Leonis . .	5.6	45 9.0	11 0 3.09	2 50.61	1.78	— 0.16	+ 25 48 26.0	24.5	+ 0.6
j)	7	48 20.6	3 15.21	2 50.61	1.02	— 1.52	+ 15 33 27.4	37.9	— 1.8
68 δ " . .		50 32.6	5 27.56	2 50.61	1.46	— 1.05	+ 21 41 16.4	29.6	— 0.6
53 ξ Ursæ Maj. .		54 32.5	9 28.12	2 50.61	2.36	+ 1.40	+ 32 43 22.5	16.7	+ 2.7
	7	55 47.7	10 43.51	2 50.61	2.48	+ 1.39	+ 33 58 58.8	15.3	+ 2.9
56 " .		8 58 50.4	13 46.71	2 50.61	3.64	+ 1.85	+ 44 38 32.6	4.2	+ 5.0
	7.8	9 4 48.3	19 45.59	2 50.61	3.13	+ 1.33	+ 40 38 20.0	8.5	+ 4.1
57 " .		5 17.1	20 14.47	2 50.61	3.14	+ 1.33	+ 40 30 12.2	8.5	+ 4.2
90 Leonis . .		11 20.3	26 18.66	2 50.60	1.19	— 1.40	+ 17 58 28.3	34.5	— 1.5
59 Ursæ Maj. .		14 39.6	29 38.50	2 50.60	3.68	+ 1.91	+ 44 47 54.2	4.0	+ 5.0
61 " .		17 29.7	32 29.07	2 50.60	2.61	+ 1.32	+ 35 23 59.6	13.8	+ 3.1
62 Leonis . .	7	20 1.4	35 1.19	2 50.60	2.39	+ 1.40	+ 32 56 30.0	16.4	+ 2.7
3 ν Virginis .		22 35.8	37 36.01	2 50.60	0.51	— 1.31	+ 7 43 39.7	50.3	— 1.7
	7	25 52.2	40 52.95	2 50.60	0.41	— 1.01	+ 6 22 54.2	52.7	— 1.5
	8.9	28 11.4	43 12.53	2 50.60	0.85	— 1.79	+ 12 59 34.6	41.7	— 2.0
6 A " .		31 47.7	46 49.42	2 50.60	0.62	— 2.56	+ 9 37 56.2	47.1	— 1.8
k)	8.9	34 29.7	49 31.87	2 50.60	0.52	— 1.35	+ 8 10 5.0	49.9	— 1.7
8 π Virginis .		37 36.5	52 39.18	2 50.60	0.51	— 1.33	+ 7 48 25.9	50.3	— 1.7
9 o " . .		42 2.6	11 57 6.01	2 50.59	0.75	— 3.44	+ 9 55 11.6	46.8	— 1.8
l) 11 s " . .	5	9 46 49.2	12 1 53.39	2 50.59	— 0.45	— 1.14	+ 6 59 52.8	0 51.7	— 1.6
51 θ " . .		10 46 20.5	13 1 34.47	2 50.57	+ 0.28	+ 1.64	— 4 23 8.2	1 17.2	— 0.6
56 " . .		50 58.8	6 13.53	2 50.57	0.60	+ 1.84	— 9 13 13.1	1 32.6	— 0.4
	7	53 41.2	8 56.37	2 50.57	0.61	+ 1.82	— 9 24 11.4	1 33.2	— 0.4
61 " . .		10 56 31.6	13 11 47.23	— 2 50.57	+ 0.65	+ 1.79	— 10 9 46.8	— 1 36.1	— 0.4

a Div. assumed as 30 14 11; not 30 14 13.
b ξ assumed as 22° 32′ 50″; not 22° 33′ 20″.
c Div. assumed as 31 9 9; not 3 9 9.
d ξ assumed as 28° 51′ 53″.5; not 28° 52′ 23″.5.
e T. I assumed as 37s.5; not 47s.5.
f Hour assumed as 13; not 12: and Div. assumed as 23; not 33.
g Div. assumed as 35; not 33: and T. III as 2m. 20s.; not 2m. 40s.
h ξ assumed as 33° 25′ 26″; not 33° 25′ 46″; and Div. assumed as 35 10 6; not 35 10 8.
i Div. assumed as 7; not 8.
j ξ assumed as 38° 59′ 15″; not 38° 59′ 45″.
k ξ assumed as 40° 41′ 0″; not 40° 56′ 0″.
l T. II assumed as 46m.; not 49m.

1783 APRIL 25—Continued Zero corr. = + 1′ 40″. 6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8	11 0 6.4	13 15 22.62	− 2 50.57	+ 0.63	+ 1.80	− 9 44 16.0	− 1 34.5	− 0.4
67 α Virginis .		1 20.8	16 37.22	2 50.57	0.65	+ 1.79	− 10 1 38.4	1 35.6	− 0.4
73 " . .		7 54.5	23 12.02	2 50.57	1.16	+ 1.59	− 17 35 51.6	2 11.9	− 0.6
	7	10 28.8	25 46.74	2 50.56	+ 0.49	+ 1.88	− 7 30 16.6	1 26.8	− 0.5
	7	14 18.2	29 36.78	2 50.56	− 0.23	− 0.36	+ 3 28 55.0	0 58.7	− 1.2
84 o " . .		19 44.3	35 3.78	2 50.56	− 0.30	− 0.58	+ 4 37 41.7	0 56.3	− 1.4
	7	23 16.7	38 36.76	2 50.56	+ 0.56	+ 1.81	− 8 37 13.2	1 30.5	− 0.4
a)	6.7	27 5.2	42 25.88	2 50.56	− 0.42	− 1.05	+ 6 33 54.0	0 52.6	− 1.6
	7.8	31 2.7	46 24.03	2 50.56	0.98	− 1.58	+ 14 53 25.0	39.1	− 1.9
b)	8	33 44.3	49 6.07	2 50.56	1.12	− 1.44	+ 16 56 1.4	36.1	− 1.7
	7	43 41.2	13 59 4.60	2 50.55	− 1.19	− 1.43	+ 17 59 24.4	0 34.7	− 1.5
c)	8	47 3.6	14 2 27.56	2 50.55	+ 0.32	+ 1.73	− 4 57 1.0	1 20.0	− 0.5
	8	47 57.9	3 22.01	2 50.55	0.33	+ 1.75	− 5 6 20.0	19.6	− 0.5
d)	8	50 30.0	5 54.53	2 50.55	0.12	+ 1.06	− 4 56 21.0	20.4	− 0.5
99 ι Virginis .		52 5.1	7 29.90	2 50.55	0.32	+ 1.73	− 4 57 59.3	1 19.3	− 0.5
e)	6	54 4.8	9 29.94	2 50.55	1.17	+ 1.58	− 17 41 43.8	2 12.9	− 0.6
2 Libræ . .	7.8	11 59 11.0	14 36.95	2 50.55	0.70	+ 1.75	− 10 43 4.6	1 38.5	− 0.3
571 Mayer . .	7.8	12 0 26.6	15 52.76	2 50.55	+ 0.69	+ 1.74	− 10 40 45.8	1 38.5	− 0.3
25 ρ Bootis . .		9 55.2	25 22.92	2 50.54	− 2.25	+ 1.33	+ 31 18 16.7	0 18.4	+ 2.3
	8.7	10 22.4	25 50.19	2 50.54	2.23	+ 1.32	+ 31 11 53.0	18.5	+ 2.3
28 σ " . .		12 39.8	28 7.97	2 50.54	2.18	+ 1.27	+ 30 40 11.2	19.1	+ 2.1
	6.7	15 35.1	31 3.75	2 50.54	1.28	− 1.30	+ 19 13 42.4	33.0	− 1.3
29 π " .		17 58.6	33 27.63	2 50.54	1.14	− 1.42	+ 17 20 6.0	35.6	− 1.7
34 " . .	6	21 18.5	36 48.08	2 50.54	1.91	+ 0.36	+ 27 25 57.4	22.8	+ 1.1
	7.8	24 56.4	40 26.58	2 50.54	1.33	− 1.23	+ 19 56 36.4	32.1	− 1.1
	6.7	28 1.3	43 31.99	2 50.54	2.08	+ 1.10	+ 29 29 44.8	20.4	+ 1.7
	7	31 0.8	46 31.98	2 50.54	1.39	− 1.17	+ 20 45 49.9	31.0	− 0.8
	6	34 28.2	49 59.95	2 50.54	1.14	− 1.42	+ 17 14 55.6	35.7	− 1.7
f)	6.7	38 31.7	54 4.18	2 50.53	1.55	− 0.87	+ 22 53 24.2	28.4	− 0.2
41 ω " . .		39 58.4	55 31.05	2 50.53	1.78	− 0.15	+ 25 50 56.8	24.7	+ 0.6
43 ψ " . .		42 30.3	14 58 3.37	2 50.53	1.94	+ 0.47	+ 27 46 38.0	22.4	+ 1.2
45 c " . .		45 7.5	15 0 41.00	2 50.53	1.77	− 0.19	+ 25 41 52.2	24.9	+ 0.6
g)	7	46 29.6	2 3.20	2 50.53	1.79	− 0.13	+ 25 55 22.0	24.6	+ 0.7
	8	49 6.6	4 40.74	2 50.53	1.40	− 1.16	+ 20 51 3.1	30.9	− 0.8
48 χ " . .	6	52 43.9	8 18.65	2 50.53	2.12	+ 1.18	+ 29 57 9.2	0 19.9	+ 1.9
6 Serpentis .	6	12 57 17.3	12 52.80	2 50.53	0.10	− 0.01	+ 1 30 8.2	1 2.9	− 0.9
h)	8	13 1 48.5	17 24.73	2 50.53	0.77	− 4.57	+ 11 45 28.4	0 13.9	− 2.0
9 " . .	7.6	3 3.0	18 39.43	2 50.53	1.06	− 1.48	+ 16 10 50.8	37.2	− 1.8
	7	6 32.0	22 9.00	2 50.53	1.13	− 1.42	+ 17 7 34.8	35.9	− 1.7
	7	9 28.0	25 5.48	2 50.52	1.10	− 1.45	+ 16 46 49.3	36.4	− 1.7
12 τ¹ " . .	6.7	10 23.0	26 0.63	2 50.52	1.10	− 1.45	+ 16 44 5.4	36.5	− 1.7
	7.8	15 16.2	30 54.63	2 50.52	2.19	+ 1.28	+ 30 41 35.0	19.1	+ 2.1
	6.7	17 41.7	33 20.53	2 50.52	2.62	+ 1.32	+ 35 21 48.4	14.0	+ 3.2
8 γ Cor. Bor. .		20 53.0	36 32.35	2 50.52	1.87	+ 0.17	+ 26 58 2.4	23.3	+ 1.0
28 β Serpentis .		23 26.0	39 5.77	2 50.52	1.06	− 1.49	+ 16 5 28.0	37.4	− 1.8
35 κ " . .	5.6	26 13.2	41 53.43	2 50.52	1.25	− 1.32	+ 18 48 1.4	33.7	− 1.3
	6.7	30 20.7	46 1.61	2 50.52	0.91	− 1.67	+ 13 52 2.3	40.7	− 2.0
41 γ " . .		33 40.0	49 21.46	2 50.52	1.08	− 1.47	+ 16 21 35.2	37.1	− 1.8
	6.7	38 9.4	53 51.61	2 50.52	2.80	+ 1.27	+ 37 14 15.6	12.0	+ 3.5
	7.8	41 17.6	15 57 0.33	2 50.51	1.22	− 1.35	+ 18 23 20.0	34.2	− 1.5
	7	44 30.1	16 0 13.36	2 50.51	2.38	+ 1.40	+ 32 49 1.6	16.8	+ 2.7
	7.8	47 45.3	3 29.09	2 50.51	3.22	+ 1.37	+ 41 10 40.5	7.8	− 4.3
	6	51 2.3	6 46.63	2 50.51	2.76	+ 1.28	+ 36 57 50.6	12.2	+ 3.5
17 σ Cor. Bor. .		53 42.1	9 26.87	2 50.51	2.52	+ 1.37	+ 34 23 18.8	15.1	+ 2.9
	7	56 27.4	12 12.62	2 50.51	2.33	+ 1.39	+ 32 17 58.6	17.3	+ 2.5
10 γ Herculis .		13 59 30.5	15 16.22	2 50.51	1.31	− 1.28	+ 19 39 7.1	32.6	− 1.2
14 ω " . .		14 2 33.2	16 18 19.42	− 2 50.51	− 0.95	− 1.61	+ 14 31 31.6	− 0 39.8	− 2.0

a ζ assumed as 42° 17′; not 42° 47′.
b ζ assumed as 31° 55′ 4″; not 31° 54′ 44″; and Div. assumed as 34 0 12; not 34 0 10.
c ζ assumed as 53° 48′ 6″; not 53° 46′ 8″.
d ζ assumed as 53°; not 50°.
e T. III assumed as 54m. 29s.; not 54m. 39s.
f Transits over Ts. II and III assumed as recorded over Ts. I and II.
g ζ assumed as 22°; not 23°: and T. I rejected.
h ζ assumed as 37°; not 35°.

1783 APRIL 26 Zero corr. = + 1′ 45″. 6.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	Venus . .		1 49 12.8	4 6 55.10	− 2 50.38	− 1.45	− 1.09	+ 21 35 0.5	− 0 29.6	− 0.6
	α Geminorum		5 5 21.0	7 23 35.52	2 50.31	2.33	+ 1.39	+ 32 19 28.4	17.0	+ 2.5
	Procyon .		12 32.3	30 48.00	2 50.31	0.37	− 0.87	+ 5 45 9.6	53.6	− 1.5
	78 β Geminorum		16 37.1	7 34 53.47	2 50.31	1.99	+ 0.79	+ 28 30 46.2	21.3	+ 1.5
	17 β Cancri . .		5 49 16.3	8 7 38.07	2 50.30	0.63	− 3.19	+ 9 49 29.0	46.8	− 1.8
a)	9 ι Ursæ Maj.		6 28 40.5	8 47 8.92	2 50.27	4.20	+ 3.22	+ 48 51 4.5	0.0	+ 5.6
	40 Lyncis .		52 8.3	9 10 40.40	2 50.26	2.59	+ 1.33	+ 35 16 29.2	13.9	+ 3.1
	1 κ Leonis . .		6 56 18.8	14 51.58	2 50.26	1.88	+ 0.24	+ 27 5 2.1	23.0	+ 1.0
	9 Leon. Min.		7 4 26.8	23 0.70	2 50.25	2.81	+ 1.27	+ 37 24 55.0	11.6	+ 3.5
b)	14 ο Leonis . .		13 53.0	32 28.64	2 50.25	0.70	− 4.29	+ 10 51 11.5	45.0	− 1.9
	24 μ " . .		24 38.7	43 16.10	2 50.24	1.87	+ 0.20	+ 26 59 51.5	23.1	+ 1.0
	18 Leon. Min.	6	27 59.8	46 37.75	2 50.24	2.42	+ 1.40	+ 33 22 49.2	16.1	+ 2.7
	19 " "							+ 42 3 15.6	6.9	+ 4.5
	21 " "		38 48.1	57 27.83	2 50.24	2.69	+ 1.30	+ 36 16 10.6	12.9	+ 3.3
c)	30 η Leonis . .		39 42.5	58 22.37	2 50.23	1.17	− 1.40	+ 17 47 35.0	34.7	− 1.5
	Regulus .		41 1.8	9 59 42.89	2 50.23	0.84	− 1.79	+ 13 0 5.4	41.6	− 2.0
	22 Leon. Min.		46 47.8	10 5 28.84	2 50.23	2.34	+ 1.39	+ 32 30 47.5	16.9	+ 2.6
	23 " "		48 3.7	6 44.95	2 50.23	2.15	+ 1.24	+ 30 21 41.0	19.3	+ 2.0
		7	50 5.8	8 47.38	2 50.23	1.99	+ 0.78	+ 28 28 10.0	21.4	+ 1.4
	25 " "		52 11.6	10 53.52	2 50.23	3.41	+ 1.50	+ 42 54 19.9	6.0	+ 4.7
	29 " "		57 21.8	16 4.57	2 50.23	2.71	+ 1.30	+ 36 29 53.6	12.7	+ 3.4
	31 " "		7 59 26.8	18 9.91	2 50.23	2.85	+ 1.27	+ 37 47 12.2	11.3	+ 3.7
	32 " "		8 1 33.4	20 16.86	2 50.22	3.08	+ 1.31	+ 40 0 11.4	9.0	+ 4.1
	34 " "		5 12.5	23 56.56	2 50.22	2.67	+ 1.30	+ 36 4 30.4	13.1	+ 3.3
	36 " "		9 39.7	28 24.49	2 50.22	2.59	+ 1.33	+ 35 10 22.2	14.0	+ 3.1
	37 " "		10 35.8	29 20.75	2 50.22	2.39	+ 1.40	+ 33 4 24.3	16.3	+ 2.7
		5	14 6.8	32 52.33	2 50.22	2.36	+ 1.40	+ 32 48 8.0	16.6	+ 2.7
	47 Ursæ Maj.		31 21.8	50 10.16	2 50.21	3.25	+ 1.39	+ 41 33 27.2	7.4	+ 4.4
		6	36 6.0	54 55.14	2 50.21	1.87	+ 0.17	+ 26 54 52.2	23.2	+ 1.0
	51 Leon. Min.	7	37 43.2	10 56 32.60	2 50.21	1.82	− 0.02	+ 26 20 58.0	23.9	+ 0.8
	53 " "		41 12.8	11 0 2.77	2 50.20	1.78	− 0.16	+ 25 48 25.0	24.5	+ 0.7
		7	46 19.5	5 10.31	2 50.20	1.43	− 1.10	+ 21 17 31.8	30.1	− 0.7
	68 δ Leonis . .		46 36.3	5 27.16	2 50.20	1.46	− 1.05	+ 21 41 14.6	29.6	− 0.6
	53 ξ Ursæ Maj.		50 35.9	9 27.42	2 50.20	2.36	+ 1.40	+ 32 43 20.0	16.7	+ 2.7
	54 ν " "		50 45.1	9 36.64	2 50.20	2.50	+ 1.38	+ 34 15 1.5	15.0	+ 2.9
		7	51 51.2	10 42.93	2 50.20	2.47	+ 1.39	+ 33 58 56.3	15.3	+ 2.9
d)	56 " "		54 53.5	13 45.79	2 50.20	3.62	+ 1.85	+ 44 38 31.6	4.2	+ 5.0
	81 Leonis . .		8 58 18.3	17 11.09	2 50.20	1.17	− 1.41	+ 17 37 33.5	35.0	− 1.6
		6	9 2 32.7	21 26.19	2 50.19	2.22	+ 1.32	+ 31 8 46.5	18.5	+ 2.2
		7	5 32.1	24 26.08	2 50.19	1.28	− 1.30	+ 19 10 36.6	32.9	− 1.3
		7.8	8 21.9	27 16.34	2 50.19	1.27	− 1.31	+ 19 3 2.8	0 33.0	− 1.3
		7	13 13.5	32 8.74	2 50.19	0.13	− 0.12	+ 2 8 19.3	1 1.2	− 1.0
	2 ξ¹ Virginis .		18 3.5	36 59.53	2 50.19	0.61	− 2.08	+ 9 26 40.7	0 47.5	− 1.8
		8	25 33.0	44 30.26	2 50.18	4.04	+ 2.95	+ 47 44 1.6	1.1	+ 5.5
	65 Ursæ Maj.	7	27 41.0	46 38.61	2 50.18	4.03	+ 2.93	+ 47 39 14.0	1.2	+ 5.5
		8	33 7.2	52 5.70	2 50.18	3.78	+ 2.31	+ 45 48 28.2	3.1	+ 5.3
			34 58.6	53 57.40	2 50.18	3.58	+ 1.73	+ 44 13 15.0	4.7	+ 4.9
	67 " "	6.7	35 21.3	11 54 20.16	2 50.18	3.59	+ 1.75	+ 44 17 42.0	4.7	+ 4.9
		7	41 1.1	12 0 0.90	2 50.17	3.17	+ 1.36	+ 40 50 11.2	8.1	+ 4.3
		7	43 41.8	2 42.04	2 50.17	3.20	+ 1.37	+ 41 4 17.8	7.9	+ 4.3
		7.8	48 16.3	7 17.30	2 50.17	4.12	+ 3.09	+ 48 17 36.0	0.5	+ 5.5
		7.8	52 7.2	11 8.83	2 50.17	3.25	+ 1.39	+ 41 29 25.0	7.5	+ 4.4
		7.8	54 10.3	13 12.27	2 50.17	3.89	+ 2.64	+ 46 41 29.0	2.2	+ 5.4
	4 Can. Ven.	6.7	56 56.7	15 59.12	2 50.17	3.51	+ 1.63	+ 43 43 0.6	5.3	+ 4.9
	6 " "	6	9 58 58.9	18 1.65	2 50.16	3.10	+ 1.32	+ 40 11 44.2	8.8	+ 4.1
		7	10 4 16.2	23 19.82	2 50.16	3.16	+ 1.35	+ 40 45 15.0	8.1	+ 4.3
	8 " "	5	7 15.1	26 19.21	2 50.16	3.36	+ 1.47	+ 42 30 32.0	6.4	+ 4.6
		7	10 55.7	30 0.42	2 50.16	3.07	+ 1.30	+ 39 51 20.6	9.2	+ 4.1
		7.8	15 47.8	34 53.22	2 50.16	3.94	+ 2.75	+ 47 2 20.6	1.9	+ 5.4
		6.7	19 48.2	38 54.38	2 50.15	0.46	− 1.17	+ 7 7 30.3	51.5	− 1.6
	37 Virginis .	6	24 20.4	43 27.32	2 50.15	− 0.27	− 0.50	+ 4 13 22.8	57.2	− 1.3
	43 δ " . .							+ 4 33 49.4	0 56.4	− 1.4
	44 κ " . .		10 32 12.2	12 51 20.41	− 2 50.15	+ 0.17	+ 1.24	− 2 39 1.2	1 12.7	− 0.7
	46 " . .							− 2 12 40.0	− 1 11.5	− 0.7

a T. III rejected.
b ξ assumed as 37° 59′; not 37° 39′.
c T. II rejected.
d Min. assumed as 39; not 40.

1783 APRIL 26—Continued Zero corr. = + 1′ 45″. 6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
48 Virginis .		10 36 26.0	12 55 34.90	— 2 50.15	+ 0.16	+ 1.20	— 2 30 16.2	— 1 12.2	— 0.7
49 g " . .		40 12.7	12 59 22.22	2 50.14	0.62	+ 1.81	— 9 34 58.7	34.1	— 0.4
50 " . .							— 9 10 27.0	32.6	— 0.4
	7.8	43 58.6	13 3 8.74	2 50.14	0.65	+ 1.79	— 10 4 8.9	35.6	— 0.4
56 " . .	8.9	47 2.2	6 12.84	2 50.14	0.59	+ 1.84	— 9 13 17.0	32.6	— 0.4
a)	7	49 44.5	8 55.58	2 50.14	+ 0.60	+ 1.82	— 9 24 19.0	1 33.3	— 0.4
	6.7	53 22.5	12 34.18	2 50.14	— 0.26	— 0.46	+ 4 4 8.5	0 57.3	— 1.3
	7.8	10 56 18.2	13 15 30.36	— 2 50.14	— 0.25	— 0.41	+ 3 50 1.0	— 0 57.9	— 1.3

1783 APRIL 27 Zero corr. = + 1′ 42″. 8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
29 Leon. Min.		7 53 25.0	10 16 3.68	— 2 49.11	— 2.70	+ 1.30	+ 36 29 53.8	— 0 12.6	+ 3.4
32 Flamsteed	6.7	57 37.0	20 16.37	2 49.11	3.06	+ 1.31	+ 40 0 13.7	9.0	+ 4.1
	7	7 58 32.9	21 12.42	2 49.11	3.08	+ 1.31	+ 40 6 16.3	8.9	+ 4.1
	7.8	8 0 39.8	23 19.67	2 49.10	3.10	+ 1.32	+ 40 18 28.8	8.6	+ 4.1
35 Leon. Min.		4 3.3	26 43.73	2 49.10	2.79	+ 1.27	+ 37 25 15.8	11.6	+ 3.5
36 " "		5 42.3	28 23.00	2 49.10	2.58	+ 1.33	+ 35 10 25.0	14.0	+ 3.1
		10 10.2	32 51.63	2 49.10	2.35	+ 1.40	+ 32 48 8.5	16.5	+ 2.6
42 " "	6.7	13 55.8	36 37.85	2 49.09	2.26	+ 1.38	+ 31 47 45.5	17.6	+ 2.5
50 " "	6	24 55.2	47 39.06	2 49.09	1.82	+ 0.06	+ 26 37 55.3	23.4	+ 0.9
	6	27 31.6	50 15.89	2 49.09	2.78	+ 1.27	+ 37 13 45.2	11.8	+ 3.5
	7	30 4.6	52 49.30	2 49.08	2.19	+ 1.30	+ 31 0 26.8	18.5	+ 2.2
	7	32 9.7	54 54.75	2 49.08	1.86	+ 0.17	+ 26 54 57.2	23.1	+ 1.0
51 Leon. Min.	7.8	33 46.8	56 32.11	2 49.08	1.80	— 0.02	+ 26 21 0.8	23.8	+ 0.8
b) 52 " . .	7	35 30.2	10 58 15.80	2 49.08	1.83	+ 0.08	+ 26 40 59.5	23.4	+ 0.9
53 " . .		37 15.7	11 0 1.58	2 49.08	1.76	— 0.16	+ 25 48 26.4	24.4	+ 0.6
	7.8	40 36.6	3 23.03	2 49.08	2.64	+ 1.31	+ 35 56 18.8	13.2	+ 3.3
c) 68 δ Leonis . .		42 39.4	5 26.17	2 49.08	1.45	— 1.05	+ 21 41 15.8	29.5	+ 0.6
d) 53 ξ Ursæ Min.		46 39.3	9 26.73	2 49.07	2.34	+ 1.40	+ 32 43 20.2	16.6	+ 2.7
	7	50 55.5	13 43.63	2 49.07	3.21	+ 1.38	+ 41 20 6.2	7.6	+ 4.3
	8.9	55 44.8	18 33.72	2 49.07	3.98	+ 2.88	+ 47 27 43.6	1.4	+ 5.4
	7	8 58 48.2	21 37.62	2 49.07	3.62	+ 1.87	+ 44 44 24.4	4.1	+ 5.0
	7.8	9 1 30.0	24 19.86	2 49.06	2.58	+ 1.33	+ 35 13 23.4	13.9	+ 3.1
	8	4 24.1	27 14.44	2 49.06	1.26	— 1.31	+ 19 3 2.0	32.9	— 1.3
	7.6	6 38.5	29 29.21	2 49.06	2.38	+ 1.40	+ 33 3 29.6	16.3	+ 2.7
62 Ursæ Maj.	5.6	10 15.4	33 6.70	2 49.06	2.36	+ 1.40	+ 32 55 16.2	16.4	+ 2.7
	6.7	12 7.6	34 59.21	2 49.05	2.36	+ 1.40	+ 32 56 33.5	16.4	+ 2.7
	6	18 23.0	41 15.64	2 49.05	2.66	+ 1.30	+ 36 6 37.0	13.0	+ 3.3
	7	20 25.3	43 18.11	2 49.05	2.98	+ 1.28	+ 39 14 48.7	9.7	+ 3.9
	7.8	22 31.8	45 25.12	2 49.05	3.30	+ 1.43	+ 42 5 41.0	6.8	+ 4.5
	7.6	24 46.5	47 40.19	2 49.05	3.26	+ 1.41	+ 41 49 45.9	7.1	+ 4.5
	7.6	26 1.2	48 55.09	2 49.05	3.24	+ 1.39	+ 41 31 34.9	7.4	+ 4.4
	8	29 10.7	52 5.11	2 49.04	3.75	+ 2.31	+ 45 48 27.2	3.1	+ 5.3
67 " "	6	31 1.8	53 56.52	2 49.04	3.55	+ 1.73	+ 44 13 17.7	4.7	+ 4.9
e)	7.8	37 3.7	11 59 59.41	2 49.04	3.16	+ 1.36	+ 40 50 12.2	8.1	+ 4.3
	7	39 44.7	12 2 40.85	2 49.04	3.17	+ 1.37	+ 41 4 16.2	7.8	+ 4.3
		44 18.0	7 15.80	2 49.04	4.10	+ 3.09	+ 48 17 35.6	0.6	+ 5.5
	7	48 11.4	11 8.94	2 49.03	3.22	+ 1.39	+ 41 29 20.6	7.4	+ 4.3
	7.8	50 14.6	13 12.48	2 49.03	3.87	+ 2.64	+ 46 41 29.4	2.2	+ 5.4
4 Can. Ven.	5	52 59.4	15 57.73	2 49.03	3.49	+ 1.63	+ 43 43 0.8	5.2	+ 4.9
6 " . .	6	55 2.1	18 0.77	2 49.03	3.08	+ 1.32	+ 40 11 45.6	8.8	+ 4.1
f)	7.8	9 59 28.6	22 28.00	2 49.02	3.11	+ 1.33	+ 40 25 32.0	8.5	+ 4.1
	7	10 0 19.2	23 18.74	2 49.02	3.14	+ 1.35	+ 40 45 17.6	8.2	+ 4.2
8 " . .	5	3 18.0	26 18.03	2 49.02	3.34	+ 1.47	+ 42 30 35.5	6.4	+ 4.6
	7.8	5 6.9	28 7.23	2 49.02	3.16	+ 1.36	+ 40 51 11.0	8.1	+ 4.3
g)	7	6 58.4	29 59.04	2 49.02	3.05	+ 1.30	+ 39 51 23.6	9.1	+ 4.1
9 " . .							+ 42 2 30.4	6.9	+ 4.5
	7.8	11 51.1	34 52.54	2 49.02	3.92	+ 2.75	+ 47 2 21.0	1.8	+ 5.4
	6.7	16 10.6	39 12.75	2 49.01	— 1.10	— 1.45	+ 16 45 36.1	0 36.1	— 1.7
524 Mayer . .	6.7	10 19 52.8	12 42 55.56	— 2 49.01	+ 0.59	+ 1.84	— 9 9 40.2	— 1 31.9	— 0.4

a ζ assumed as 58°; not 50°.
b Min. assumed as 35; not 34.
c Div. assumed as 28 15 9; not 28 15 6.
d Name assumed as 53 ξ Ursæ Majoris; not 53 ξ Ursæ Minoris.
e Div. assumed as 8 8 12; not 8 0 12.
f ζ assumed as 8° 25′ 33″; not 8° 25′ 43″.
g ζ assumed as 8°; not 7°.

1783 APRIL 27—Continued Zero corr. = + 1′ 42″. 8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
40 ψ Virginis .		10 22 50.7	12 45 53.95	— 2 49.01	+ 0.54	+ 1.87	— 8 21 53.8	— 1 29.3	— 0.5
43 δ " . .		24 29.4	47 32.92	2 49.01	— 0.29	— 0.56	+ 4 33 51.2	0 56.0	— 1.4
	7.6	27 16.0	50 19.95	2 49.00	+ 0.11	+ 0.98	— 1 44 21.0	1 10.1	— 0.7
46 " . .		29 11.8	52 16.07	2 49.00	0.14	+ 1.12	— 2 12 35.9	11.2	— 0.7
48 " . .		32 29.5	12 55 34.31	2 49.00	0.16	+ 1.20	— 2 30 15.2	11.9	— 0.7
	6	36 58.3	13 0 3.85	2 49.00	0.50	+ 1.88	— 7 49 31.9	27.4	— 0.5
a) 53 " . .	5	40 14.7	3 20.78	2 49.00	0.98	+ 1.61	— 15 1 19.6	57.0	— 0.5
56	7	43 5.8	6 12.35	2 48.99	0.60	+ 1.84	— 9 13 12.1	32.2	— 0.4
	6.7	45 47.4	8 54.39	2 48.99	0.61	+ 1.82	— 9 24 14.0	32.8	— 0.4
62 " . .	6.7	48 38.8	11 46.26	2 48.99	0.66	+ 1.79	— 10 9 54.8	35.6	— 0.4
65 " . .		51 46.8	14 54.78	2 48.99	0.24	+ 1.53	— 3 47 40.3	15.4	— 0.6
66 " . .	6.5	10 52 57.6	16 5.77	2 48.99	0.26	+ 1.58	— 4 2 6.3	16.1	— 0.6
	9	11 0 4.2	23 13.54	2 48.98	0.59	+ 1.84	— 9 8 25.0	31.9	— 0.4
76 h " . .		1 12.7	24 22.23	2 48.98	+ 0.58	+ 1.85	— 9 2 51.6	31.5	— 0.4
	6.7	4 51.2	28 1.33	2 48.98	— 0.01	+ 0.30	+ 0 10 24.4	1 5.5	— 0.8
	7	8 19.1	31 29.80	2 48.98	1.28	— 1.28	+ 19 21 9.6	0 32.7	— 1.2
1 Bootis . .	6.7	10 1.3	33 12.28	2 48.98	1.40	— 1.13	+ 21 2 11.8	30.5	— 0.8
		13 11.7	36 23.20	2 48.97	1.61	— 0.70	+ 23 46 36.0	27.0	0.0
4 τ " . .		16 38.7	39 50.77	2 48.97	1.22	— 1.34	+ 18 31 21.0	33.8	— 1.4
7 " . .		22 31.7	45 44.74	2 48.97	1.26	— 1.31	+ 18 59 11.6	33.2	— 1.3
8 η " . .		24 1.6	47 14.88	2 48.97	1.29	— 1.27	+ 19 28 7.0	32.5	— 1.2
9 " . .		26 18.3	49 31.96	2 48.97	1.98	+ 0.79	+ 28 32 14.3	21.4	+ 1.5
10 e " . .	7	28 8.5	51 22.46	2 48.96	1.53	— 0.89	+ 22 44 17.0	28.3	— 0.3
11 " . .		30 58.2	54 12.63	2 48.96	1.98	+ 0.74	+ 28 24 55.2	21.5	+ 1.4
	8	33 16.0	13 56 30.81	2 48.96	1.98	+ 0.79	+ 28 32 6.2	21.4	+ 1.5
	7.8	36 56.7	14 0 12.12	2 48.96	2.64	+ 1.31	+ 35 47 25.6	13.4	+ 3.3
12 d " . .		40 7.7	3 23.64	2 48.96	1.78	— 0.08	+ 26 6 2.8	24.1	+ 0.7
14 " . .		43 16.5	6 32.96	2 48.96	0.90	— 1.65	+ 13 57 49.6	40.3	— 2.0
Arcturus .		45 23.3	8 40.11	2 48.95	1.35	— 1.21	+ 20 17 44.5	31.5	— 1.0
18 Bootis . .		48 23.0	11 40.30	2 48.95	0.91	— 1.65	+ 13 59 35.7	40.2	— 2.0
	7.8	52 16.6	15 34.54	2 48.95	2.14	+ 1.23	+ 30 20 30.6	19.3	+ 2.0
22 f " . .		55 57.3	19 15.84	2 48.95	1.35	— 1.22	+ 20 11 15.5	31.6	— 1.1
b)	7	11 58 37.2	21 56.18	2 48.95	1.84	+ 0.12	+ 26 48 15.4	23.4	+ 1.0
c) 26 " . .		12 2 14.7	25 34.28	2 48.94	1.56	— 0.82	+ 23 11 59.0	27.7	— 0.2
	7	5 52.2	29 12.38	2 48.94	1.64	— 0.60	+ 24 10 40.0	26.5	0.0
	6	7 42.2	31 2.68	2 48.94	1.28	— 1.30	+ 19 13 40.0	32.9	— 1.3
	6	9 54.2	33 15.04	2 48.94	0.94	— 1.62	+ 14 27 12.5	39.6	— 2.0
30 ζ Bootis . .		10 20.4	33 41.30	2 48.94	0.95	— 1.60	+ 14 38 50.1	39.3	— 1.9
35 o " . .		14 39.7	38 1.30	2 48.93	1.17	— 1.40	+ 17 52 10.9	34.8	— 1.5
d)	7	15 18.1	38 39.81	2 48.93	1.16	— 1.40	+ 17 41 55.0	35.0	— 1.5
	6.7	23 3.8	46 26.78	2 48.93	1.33	— 1.23	+ 20 0 44.4	0 31.8	— 1.1
1 Serpentis .	6	25 54.2	49 17.64	2 48.92	0.04	+ 0.16	+ 0 42 13.6	1 4.5	— 0.9
2 " .	6.7	30 10.2	53 34.34	2 48.92	0.04	+ 0.16	+ 0 42 51.9	1 4.5	— 0.9
	7.8	34 7.4	14 57 32.19	2 48.92	1.38	— 0.18	+ 20 40 26.0	0 31.0	— 0.9
45 c Bootis . .		37 14.4	15 0 39.70	2 48.92	1.76	— 0.19	+ 25 41 50.6	24.8	+ 0.6
46 " . .		38 36.4	2 1.92	2 48.92	1.78	— 0.13	+ 25 55 18.8	24.4	+ 0.7
	6.7	45 44.1	9 10.79	2 48.91	3.50	+ 1.66	+ 43 49 34.0	5.1	+ 4.9
	7	50 20.2	13 47.64	2 48.91	3.83	+ 2.53	+ 46 22 54.9	2.5	+ 5.3
e)	8	52 59.1	16 26.98	2 48.91	3.83	+ 2.54	+ 46 25 8.6	2.5	+ 5.3
	8	12 58 22.2	21 50.96	2 48.90	3.61	+ 1.87	+ 44 44 20.9	4.1	+ 5.1
	6	13 2 31.2	26 0.64	2 48.90	2.78	+ 1.27	+ 37 20 3.3	11.8	+ 3.5
5 a Cor. Bor. .		4 53.5	28 23.33	2 48.90	1.90	+ 0.35	+ 27 25 38.5	22.7	+ 1.1
	8	11 3.0	34 33.84	2 48.90	0.54	— 1.50	+ 8 30 21.0	49.0	— 1.8
24 a Serpentis .		12 56.7	36 27.86	2 48.89	0.46	— 1.17	+ 7 6 4.2	51.4	— 1.6
28 β " . .		15 32.7	39 4.29	2 48.89	1.06	— 1.49	+ 16 5 24.3	37.2	— 1.8
	7	20 3.2	43 35.53	2 48.89	1.04	— 1.50	+ 15 46 54.6	37.8	— 1.8
	7	22 29.0	46 1.73	2 48.89	1.18	— 1.38	+ 18 2 14.6	34.6	— 1.5
	6	25 18.1	48 51.29	2 48.89	1.28	— 1.29	+ 19 14 40.8	33.0	— 1.3
13 ε Cor. Bor. .		27 55.8	51 29.42	2 48.89	1.90	+ 0.38	+ 27 29 21.6	22.7	+ 1.1
	7	34 39.0	15 58 13.72	2 48.88	2.76	+ 1.27	+ 37 12 29.4	12.0	+ 3.5
f) 48 Serpentis .		40 57.6	16 4 33.36	2 48.88	1.12	— 1.42	+ 17 12 57.8	35.7	— 1.7
	7.8	46 36.6	16 10 13.29	2 48.87	1.28	— 1.28	+ 19 22 14.3	32.8	— 1.3
	7	13 31 27.9	15 55 2.10	— 2 48.88	— 2.30	+ 1.39	+ 32 9 40.0	— 0 17.4	+ 2.5

a Div. readings rejected: and T III assumed as 40m. 38s.5; not 40m. 33s.5.
b Div. assumed as 22 2 48; not 22 2 38.
c Div. assumed as 27 5 12; not 27 4 12.
d ζ assumed as 31° 9′ 10″; not 31° 9′ 20″.
e T III assumed as 53m. 32s.; not 53m. 34s.
f Div. assumed as 33 11 14; not 33 11 15.

1783 APRIL 27—Continued Zero corr. = + 1′ 42″.8.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
15 ρ Cor. Bor. .		13 32 3.8	15 55 38.10	— 2 48.89	— 2.46	+ 1.39	+ 33 56 18.4	— 0 15.5	+ 2.9
	6.7	37 16.6	16 0 51.76	2 48.88	1.50	— 0.95	+ 22 23 32.5	28.9	— 0.4
	6	45 9.3	8 45.75	2 48.87	1.28	— 1.29	+ 19 20 39.6	32.8	— 1.2
	6.7	49 56.4	13 33.63	2 48.87	1.44	— 1.06	+ 21 38 36.0	29.9	— 0.6
24 ω Herculis .		54 40.2	18 18.22	2 48.87	0.94	— 1.61	+ 14 31 22.2	39.6	— 1.9
26 " . .	7	13 58 56.3	22 35.02	2 48.86	2.38	+ 1.40	+ 33 9 46.0	16.3	+ 2.7
32 " . .		14 4 14.6	27 54.19	2 48.86	2.19	+ 1.30	+ 30 56 6.4	18.8	+ 2.2
	6.7	6 16.2	29 56.12	2 48.86	0.97	— 1.58	+ 14 54 23.0	39.0	— 1.9
	6.7	9 19.0	32 59.42	2 48.86	1.50	— 0.94	+ 22 25 30.6	28.8	— 0.4
	6.7	11 13.1	34 53.83	2 48.85	1.72	— 0.30	+ 25 15 46.2	25.3	+ 0.5
	6	14 45.9	38 27.22	2 48.85	1.06	— 1.48	+ 16 8 12.5	37.2	— 1.8
	6.7	17 21.1	41 2.84	2 48.85	0.90	— 1.65	+ 13 58 4.2	40.6	— 2.0
46 " . .	6.5						+ 13 37 54.0	40.9	— 2.0
49 " . .	7	14 21 23.3	16 45 5.70	— 2 48.84	— 1.00	— 1.54	+ 15 19 44.2	— 0 38.4	— 1.9

1783 APRIL 28 Zero corr. = + 1′ 41″.5.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Sirius . .		4 12 21.8	6 38 20.73	— 2 48.54	+ 1.07	+ 1.67	— 16 25 40.4	— 2 2.8	— 0.5
Procyon .		5 4 38.6	7 30 46.12	2 48.50	— 0.36	— 0.87	+ 5 45 11.2	0 53.1	— 1.5
78 β Geminorum		5 8 43.4	7 34 51.59	2 48.50	1.97	+ 0.79	+ 28 30 46.6	21.1	+ 1.5
1 κ Leonis . .		6 48 25.7	9 14 50.27	2 48.43	1.86	+ 0.24	+ 27 5 2.1	22.8	+ 1.0
14 ο " . .		7 5 57.5	32 24.95	2 48.42	0.70	— 4.29	+ 10 51 10.2	44.5	— 1.9
24 μ " . .							+ 26 59 51.2	22.8	+ 1.0
17 Leon. Min.	6	20 6.3	46 36.07	2 48.41	2.39	+ 1.40	+ 33 22 50.2	15.8	+ 2.7
29 π Leonis . .		25 5.4	51 35.99	2 48.41	0.58	— 1.67	+ 9 3 37.2	47.4	— 1.8
21 Leon. Min.		30 54.6	57 26.15	2 48.40	2.66	+ 1.30	+ 36 16 10.0	12.7	+ 3.3
30 η Leonis . .		31 49.6	58 21.30	2 48.40	1.16	— 1.40	+ 17 47 35.2	34.3	— 1.5
Regulus .		33 8.6	9 59 40.52	2 48.40	0.84	— 1.79	+ 13 0 5.6	41.3	— 2.0
22 Leon. Min.	6.7	38 55.2	10 5 28.07	2 48.39	2.31	+ 1.39	+ 32 30 49.5	16.7	+ 2.6
23 " . .	5.6	40 10.5	6 43.57	2 48.39	2.13	+ 1.24	+ 30 21 39.5	19.1	+ 2.0
24 " . .	6						+ 29 44 16.0	19.8	+ 1.8
25 " . .		44 18.7	10 52.45	2 48.39	3.37	+ 1.50	+ 42 54 19.4	5.9	+ 4.7
34 υ Ursæ Maj.		45 38.7	12 12.67	2 48.39	3.34	+ 1.47	+ 42 33 28.4	6.3	+ 4.6
	6.5	45 31.0	12 4.95	2 48.39	3.31	+ 1.45	+ 42 17 53.8	6.6	+ 4.5
	7	49 31.8	16 6.41	2 48.39	2.43	+ 1.39	+ 33 49 53.8	15.3	+ 2.9
	6	54 18.6	20 53.99	2 48.39	2.77	+ 1.27	+ 37 21 27.4	11.6	+ 3.5
a)	5.6	7 56 47.8	23 23.60	2 48.38	3.21	+ 1.39	+ 41 30 33.7	7.4	+ 4.4
	8	8 0 21.2	26 57.58	2 48.38	3.98	+ 2.92	+ 47 38 25.6	1.2	+ 5.5
	7	3 21.2	29 58.07	2 48.38	4.03	+ 3.00	+ 47 56 15.6	0.9	+ 5.5
	6	6 13.4	32 50.74	2 48.38	2.34	+ 1.40	+ 32 48 9.0	16.5	+ 2.7
42 Leon. Min.	6	9 59.0	36 36.96	2 48.38	2.25	+ 1.38	+ 31 47 48.0	17.5	+ 2.4
	7	10 1.0	36 38.96	2 48.38	2.25	+ 1.37	+ 31 44 20.0	17.5	+ 2.4
		10 33.2	37 11.25	2 48.38	2.25	+ 1.38	+ 31 47 23.0	17.5	+ 2.4
46 " . .	4.5	17 20.2	43 59.36	2 48.37	2.57	+ 1.32	+ 35 21 15.2	13.7	+ 3.2
b) 47 " . .		19 3.8	45 43.24	2 48.37	2.56	+ 1.33	+ 35 9 49.0	13.9	+ 3.1
	6.7	23 35.1	50 15.28	2 48.37	2.76	+ 1.27	+ 37 13 43.6	11.7	+ 3.5
		28 20.0	10 55 0.96	2 48.36	3.04	+ 1.31	+ 40 0 23.8	8.9	+ 4.1
c) 53 ξ Ursæ Maj.		42 42.5	11 9 25.82	2 48.35	2.34	+ 1.40	+ 32 43 17.8	16.6	+ 2.6
	7	43 57.7	10 41.22	2 48.35	2.45	+ 1.39	+ 33 58 54.0	15.2	+ 2.9
	7	46 58.7	13 42.72	2 48.35	3.20	+ 1.38	+ 41 20 4.6	7.6	+ 4.3
	8.9	51 48.8	18 33.62	2 48.35	3.95	+ 2.88	+ 47 27 38.6	1.4	+ 5.4
	7	54 51.6	21 36.93	2 48.35	3.59	+ 1.87	+ 44 44 20.6	4.1	+ 5.0
	8	8 57 33.0	24 18.77	2 48.34	2.56	+ 1.33	+ 35 13 18.8	13.9	+ 3.1
	6	9 0 56.2	27 42.53	2 48.34	2.01	+ 0.95	+ 28 57 19.8	20.7	+ 1.6
	7	1 53.2	28 39.69	2 48.34	2.01	+ 0.95	+ 28 57 2.0	20.7	+ 1.6
62 Ursæ Maj.		6 18.8	33 6.02	2 48.34	2.35	+ 1.40	+ 32 55 13.2	16.3	+ 2.7
	7	8 11.1	34 58.63	2 48.34	2.35	+ 1.40	+ 32 56 26.8	16.3	+ 2.7
d) 63 χ " "		10 35.5	37 23.43	2 48.34	4.16	+ 3.24	+ 48 57 2.0	0.1	+ 5.6
	6	14 26.4	41 14.96	2 48.33	2.65	+ 1.30	+ 36 6 34.0	13.0	+ 3.3
	9	14 55.2	41 43.84	2 48.33	2.62	+ 1.31	+ 35 58 13.0	13.1	+ 3.3
	7	16 28.3	43 17.20	2 48.33	2.96	+ 1.28	+ 39 14 51.3	9.7	+ 3.9
	7.8	9 18 34.8	11 45 24.05	— 2 48.33	— 3.28	+ 1.43	+ 42 5 45.2	— 0 6.8	+ 4.5

a T III assumed as 57m. 18s.5; not 57m. 58s.5.
b ζ assumed as 13° 41′ 17″; not 13° 41′ 47″.
c ζ assumed as 16° 7′; not 16° 8′.
d ζ assumed as 89°; not 88°.

1783 APRIL 28—Continued Zero corr. = + 1′ 41″. 5.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		8	9 20 50.2	11 47 39.82	− 2 48.33	− 3.25	+ 1.41	+ 41 49 43.0	− 0 7.1	+ 4.5
a)		6.7	22 4.2	48 54.03	2 48.33	3.22	+ 1.39	+ 41 31 35.0	7.4	+ 4.4
b)		8.9	25 13.3	52 3.64	2 48.33	3.73	+ 2.32	+ 45 48 29.2	3.1	+ 5.3
	67 Ursæ Maj.		27 4.8	53 55.45	2 48.32	3.54	+ 1.73	+ 44 13 13.0	4.7	+ 4.9
c)		7	27 28.0	54 18.71	2 48.32	3.53	+ 1.73	+ 44 17 41.0	4.7	+ 4.9
d)		9.8	32 18.3	59 9.80	2 48.32	3.54	+ 1.75	+ 44 16 31.8	4.7	+ 4.9
e)		7.8	33 7.6	11 59 59.23	2 48.32	3.14	+ 1.36	+ 40 50 11.6	8.0	+ 4.3
		7	35 48.2	12 2 40.27	2 48.32	3.16	+ 1.37	+ 41 4 16.8	7.8	+ 4.3
		7	39 27.8	6 20.47	2 48.31	4.06	+ 3.08	+ 48 13 20.0	0.6	+ 5.5
f)		7	39 46.2	6 38.92	2 48.31	4.07	+ 3.08			
			40 22.8	7 15.62	2 48.31	4.07	+ 3.09	+ 48 17 31.0	0.6	+ 5.5
		7	44 14.7	11 8.16	2 48.31	3.22	+ 1.39	+ 41 29 18.0	7.4	+ 4.3
g)		7.8	46 17.4	13 11.20	2 48.31	3.85	+ 2.64	+ 46 41 30.6	2.2	+ 5.4
h)	4 Can. Ven.		49 2.6	15 56.85	2 48.31	3.47	+ 1.63	+ 43 42 59.8	5.2	+ 4.8
		7	50 12.1	17 6.54	2 48.31	3.51	+ 1.69	+ 44 1 35.2	4.8	+ 4.9
	15 c Comæ . .		52 3.1	18 57.84	2 48.31	2.05	+ 1.09	+ 29 27 3.2	20.2	+ 1.7
		6.7	52 38.7	19 33.54	2 48.31	2.04	+ 1.07	+ 29 17 17.5	20.4	+ 1.7
			55 32.5	22 27.81	2 48.31	3.09	+ 1.33	+ 40 25 33.0	8.5	+ 4.1
i)			56 22.1	23 17.54	2 48.30	3.13	+ 1.35	+ 40 45 11.0	8.2	+ 4.3
	8 Can. Ven.		9 59 20.9	26 16.84	2 48.30	3.33	+ 1.47	+ 42 30 31.2	6.4	+ 4.6
		8	10 1 10.5	28 6.74	2 48.30	3.14	+ 1.36	+ 40 51 15.5	8.1	+ 4.3
		8	3 2.1	29 58.64	2 48.30	3.04	+ 1.30	+ 39 51 23.6	9.1	+ 4.1
		7	5 28.2	32 25.14	2 48.30	2.57	+ 1.32	+ 35 19 55.5	13.8	+ 3.1
		7	7 54.8	34 52.14	2 48.30	3.90	+ 2.75	+ 47 2 19.8	1.8	+ 5.4
		6.5	10 48.8	37 46.62	2 48.30	3.84	+ 2.61	+ 46 35 54.3	2.2	+ 5.4
	30 Comæ . .	6	14 35.3	41 33.74	2 48.29	1.99	+ 0.86	+ 28 42 39.8	21.0	+ 1.5
		9	18 31.3	45 30.39	2 48.29	0.34	− 0.77	+ 5 24 14.5	54.1	− 1.4
	43 δ Virginis .		20 32.5	47 31.92	2 48.29	− 0.29	− 0.56	+ 4 33 46.4	0 55.7	− 1.4
		6	23 19.6	50 19.48	2 48.29	+ 0.11	+ 0.99	− 1 44 24.2	1 9.6	− 0.7
j)	46 " . .		25 15.0	52 15.19	2 48.28	0.14	+ 1.12	− 2 12 42.2	10.7	− 0.7
	48 " . .		28 32.3	55 33.04	2 48.28	0.16	+ 1.20	− 2 30 17.8	11.3	− 0.7
k)	49 g " . .		32 19.5	12 59 20.86	2 48.28	0.62	+ 1.81	− 9 35 1.2	33.0	− 0.4
	53 " . .		36 18.4	13 3 20.41	2 48.28	0.98	+ 1.61	− 15 1 25.6	55.9	− 0.5
	56 " . .	7	39 9.0	6 11.48	2 48.28	0.60	+ 1.84	− 9 13 15.1	31.5	− 0.4
l)	58 " . .	6	41 50.7	8 53.62	2 48.27	0.61	+ 1.83	− 9 24 18.5	1 32.2	− 0.4
	63 " . .		47 9.3	14 13.09	2 48.27	1.08	+ 1.66	− 16 35 30.2	2 4.5	− 0.5
	67 α " . .		10 49 30.8	13 16 34.98	2 48.27	+ 0.64	+ 1.79	− 10 1 46.5	1 34.6	− 0.4
	30 ζ Bootis . .		12 6 23.8	14 33 40.60	2 48.22	− 0.95	− 1.60	+ 14 38 48.1	0 39.0	− 1.9
	36 ε " . .		11 5.3	38 22.87	2 48.21	1.93	+ 0.57	+ 27 58 14.6	21.8	+ 1.3
		7	13 6.8	40 24.70	2 48.21	1.32	− 1.23	+ 19 56 25.1	31.7	− 1.1
	37 ξ " . .	5	16 57.7	44 16.23	2 48.21	1.32	− 1.23	+ 19 59 8.7	31.6	− 1.1
		6	19 7.2	46 26.09	2 48.21	1.32	− 1.23	+ 20 0 41.4	0 31.6	− 1.1
	1 Serpentis .		21 58.0	49 17.36	2 48.21	0.04	+ 0.16	+ 0 42 11.4	1 4.0	− 0.9
	2 " . .	6	26 12.8	53 32.86	2 48.20	0.04	+ 0.16	+ 0 42 50.6	1 4.0	− 0.9
	110 Virginis .	6	27 28.0	54 48.27	2 48.20	0.18	− 0.27	+ 2 56 19.9	0 59.2	− 1.2
	42 β Bootis . .		29 18.9	56 39.47	2 48.20	3.18	+ 1.37	+ 41 13 22.3	7.7	+ 4.3
	44 " . .		32 9.3	14 59 30.33	2 48.20	4.09	+ 3.13	+ 48 28 14.4	0.4	+ 5.5
		7.8	35 31.5	15 2 53.08	2 48.20	1.73	− 0.25	+ 25 29 5.0	24.8	+ 0.5
		6.7	41 47.3	9 9.91	2 48.19	3.49	+ 1.66	+ 43 49 42.0	5.0	+ 4.9
		7	46 23.6	13 46.97	2 48.19	3.81	+ 2.53	+ 46 22 58.6	2.5	+ 5.3
		6	50 3.8	17 27.77	2 48.19	3.08	+ 1.32	+ 40 19 58.5	8.6	+ 4.1
	51 μ " .		51 46.2	19 10.45	2 48.19	2.84	+ 1.27	+ 38 6 56.0	10.9	+ 3.7
		7	54 25.6	21 50.28	2 48.19	3.60	+ 1.87	+ 44 44 19.6	4.1	+ 5.0
		7.8	55 55.2	23 20.14	2 48.18	2.98	+ 1.29	+ 39 27 3.1	9.5	+ 4.0
m)		6	12 58 34.7	26 0.07	2 48.18	2.76	+ 1.27	+ 37 20 3.0	11.7	+ 3.5
	6 Serpentis .		13 1 56.9	29 22.82	2 48.18	1.10	− 1.44	+ 16 49 35.0	35.9	− 1.7
		6.7	5 22.0	32 48.48	2 48.18	0.83	− 2.11	+ 12 44 50.4	41.9	− 2.0
	20 χ " . .		7 1.5	34 28.25	2 48.18	0.88	− 1.71	+ 13 32 6.2	40.7	− 2.0
	24 α " . .		9 0.3	36 27.38	2 48.18	0.44	− 1.17	+ 7 6 8.5	51.1	− 1.6
	28 β " . .		11 36.4	39 3.91	2 48.17	1.05	− 1.49	+ 16 5 24.5	36.9	− 1.8
	35 κ " . .		13 14 23.7	15 41 51.67	− 2 48.17	− 1.24	− 1.32	+ 18 48 0.0	− 0 33.3	− 1.3

a T. III assumed as 22m. 35s.; not 22m. 25s.
b T. I assumed as 40s. 5; not 20s. 5.
c ζ assumed as 4° 33′; not 4° 38′.
d ζ assumed as 4° 34′; not 4° 39′.
e ζ assumed as 8° 0′ 53″; not 8° 1′ 3″: and Micr. corr. as − 5; not + 5.
f ζ assumed as that of a star whose Cat. place is 2′ from foll. star.
g Min. assumed as 46; not 45.
h Div. assumed as 5 7 10; not 5 7 9.
i Min. assumed as 56; not 57.
j Min. assumed as 25; not 26.
k ζ assumed as 58° 26′ 8″; not 58° 26′ 38″.
l T. III assumed as 13s. 5; not 22s. 5.
m T. I assumed as 58m.; not 57m.

1783 APRIL 28—Continued Zero corr. = + 1′ 41″. 5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	6.7	13 16 6.7	15 43 34.95	— 2 48.17	— 1.03	— 1.50	+ 15 46 54.8	— 0 37.4	— 1.8
	6.7	18 32.1	46 0.75	2 48.17	1.18	— 1.38	+ 18 2 21.1	34.3	— 1.5
	6	21 21.1	48 50.21	2 48.17	1.27	— 1.29	+ 19 14 37.3	32.7	— 1.3
13 ε Cor. Bor. .		23 58.8	51 28.34	2 48.17	1.88	+ 0.38	+ 27 29 22.6	22.5	+ 1.1
		27 30.8	55 0.92	2 48.16	2.28	+ 1.39	+ 32 9 47.0	17.2	+ 2.5
	6	30 42.6	15 58 13.25	2 48.16	2.75	+ 1.27	+ 37 12 28.0	11.9	+ 3.5
	6	33 20.2	16 0 51.28	2 48.16	1.50	— 0.95	+ 22 23 32.2	28.6	— 0.4
48 Serpentis .	6	37 1.2	4 32.88	2 48.16	1.13	— 1.42	+ 17 13 0.0	35.4	— 1.7
	7	39 8.0	6 40.03	2 48.16	1.87	+ 0.28	+ 27 12 41.6	22.8	+ 1.0
16 Herculis .		41 12.3	8 44.67	2 48.15	1.27	— 1.29	+ 19 20 42.2	32.5	— 1.3
	7.8	42 40.1	10 12.71	2 48.15	1.28	— 1.28	+ 19 22 15.0	32.5	— 1.3
	6	45 59.5	13 32.66	2 48.15	1.44	— 1.06	+ 21 38 40.8	29.6	— 0.6
51 Serpentis .		50 43.8	18 17.74	2 48.15	0.94	— 1.61	+ 14 31 25.2	39.4	— 1.9
26 Herculis .	7	54 59.9	22 34.54	2 48.15	2.37	+ 1.40	+ 33 9 45.2	16.1	+ 2.7
a)	6	13 56 26.4	24 1.27	3 48.14	1.39	— 1.15	+ 20 56 25.4	30.7	— 0.8
	7.8	14 0 17.9	27 53.41	3 48.14	2.18	+ 1.28	+ 30 56 10.4	18.6	+ 2.2
	7.6	2 19.4	29 55.24	3 48.14	0.97	— 1.58	+ 14 54 21.2	38.7	— 1.9
	7.6	5 22.5	32 58.84	3 48.14	1.50	— 0.94	+ 22 25 31.8	28.6	— 0.4
b)	6	7 16.8	34 53.45	3 48.14	1.72	— 0.30	+ 25 15 47.8	25.1	+ 0.4
	6	10 49.2	38 26.43	3 48.13	1.05	— 1.48	+ 16 8 13.0	36.9	— 1.8
49 Herculis .	7	17 27.2	45 5.52	2 48.13	1.00	— 1.54	+ 15 19 41.2	38.0	— 1.9
	6	21 54.7	49 33.75	2 48.13	3.40	+ 1.54	+ 43 10 18.8	5.7	+ 4.7
	6	25 14.8	52 54.40	2 48.13	3.98	+ 2.93	+ 47 40 43.8	1.2	+ 5.5
	8	26 54.0	54 33.88	2 48.12	3.98	+ 2.93	+ 47 38 51.9	1.2	+ 5.5
	6.7	29 58.4	16 57 38.78	2 48.12	3.38	+ 1.52	+ 43 0 43.4	5.9	+ 4.7
	6	33 40.7	17 1 21.69	2 48.12	3.51	+ 1.70	+ 44 4 48.6	4.8	+ 4.9
c)	7.8	36 10.4	3 51.80	2 48.12	4.03	+ 3.01	+ 47 55 37.8	0.9	+ 5.5
65 δ " . .		41 17.2	8 59.44	2 48.11	— 1.70	— 0.35	+ 25 4 45.8	25.4	+ 0.4
67 π " . .							+ 37 1 54.4	0 12.1	+ 3.5
	4	53 18.2	21 2.41	2 48.11	+ 1.80	+ 3.18	— 26 3 17.6	3 29.6	— 2.6
	6.5	57 43.1	25 28.04	2 48.10	— 0.78	— 4.09	+ 12 4 51.5	0 43.0	— 2.0
55 α Ophiuchi .		14 59 59.6	27 44.91	2 48.10	0.82	— 2.22	+ 12 42 47.2	42.0	— 2.0
	7	15 3 31.0	31 16.89	2 48.10	0.83	— 1.81	+ 12 51 31.5	41.9	— 2.0
d)	7.6	6 16.1	34 2.44	2 48.10	0.28	— 0.54	+ 4 28 23.0	56.1	— 1.3
60 β " . .		7 49.6	35 36.20	2 48.10	0.29	— 0.59	+ 4 39 29.0	55.8	— 1.4
86 μ Herculis .		13 2.0	40 49.45	2 48.09	1.92	+ 0.50	+ 27 49 54.1	22.1	+ 1.3
	7.6	17 15.5	45 3.64	2 48.09	— 1.00	— 1.54	+ 15 22 13.3	0 38.1	— 1.9
e) 64 ν Ophiuchi .	3	22 4.7	49 53.63	2 48.09	+ 0.62	+ 1.80	— 4 47 33.4	1 18.1	— 0.5
1484 *L.C.* . .		26 4.6	53 54.19	2 48.08	2.05	+ 4.70	— 29 31 19.0	4 30.9	— 5.0
	4.5	30 11.2	17 58 1.47	2 48.08	1.12	+ 1.63	— 17 9 36.9	2 8.3	— 0.5
13 μ^1 Sagittarii .		35 43.5	18 3 34.68	2 48.08	1.40	+ 1.49	— 21 4 58.4	2 35.8	— 1.0
	6	38 23.9	6 15.52	2 48.08	2.39	+ 5.30	— 33 21 56.7	6 35.0	— 8.5
f) 19 δ " . .		41 57.7	9 49.91	2 48.07	2.08	+ 4.81	— 29 50 59.6	4 38.6	— 5.5
	6	44 49.7	12 42.38	2 48.07	0.94	+ 1.59	— 14 28 19.0	1 54.1	— 0.4
	5.6	47 51.8	15 44.98	2 48.07	+ 0.46	+ 1.87	— 7 10 50.2	26.0	— 0.5
g) 59 d Serpentis .		51 2.2	18 55.90	2 48.07	0.00	+ 0.34	+ 0 4 6.2	1 5.7	— 0.8
	5.6	55 33.7	23 28.15	2 48.06	— 1.59	— 0.72	+ 23 42 27.4	0 27.1	0.0
	7	15 57 57.3	25 52.14	2 48.06	2.28	+ 1.39	+ 32 4 26.2	17.4	+ 2.5
	6.7	16 1 13.7	29 9.08	2 48.06	2.47	+ 1.38	+ 34 15 40.0	15.0	+ 2.9
h)	6.7	2 19.5	30 15.06	2 48.06	2.47	+ 1.38	+ 34 15 42.3	15.0	+ 2.9
α Lyræ . .		4 30.6	32 26.52	2 48.06	2.89	+ 1.27	+ 38 33 30.2	10.5	+ 3.8
	6	10 53.7	38 50.67	2 48.05	2.67	+ 1.30	+ 36 18 43.7	12.8	+ 3.3
	6.5	14 20.4	42 17.94	2 48.05	1.25	— 1.31	+ 19 4 31.4	33.0	— 1.3
112 Herculis .	5	17 54.1	45 52.23	2 48.05	1.41	— 1.11	+ 21 9 7.6	30.3	— 0.8
63 θ Serpentis .		20 17.9	48 16.43	2 48.05	— 0.25	— 0.43	+ 3 55 16.2	0 57.4	— 1.3
39 ο Sagittarii .	3	26 27.9	54 27.44	2 48.04	+ 1.47	+ 1.64	— 22 1 24.8	2 44.5	— 1.2
Saturn . .		28 50.6	18 56 50.53	2 48.04	+ 1.48	+ 1.66	— 22 12 30.2	2 46.0	— 1.2
i) 30 δ Aquilæ .		49 19.9	19 17 23.19	2 48.03	— 0.17	— 0.23	+ 2 40 55.0	0 59.0	— 1.1
6 β Cygni . .		16 56 44.3	19 24 48.81	— 2 48.02	— 1.89	+ 0.37	+ 27 29 18.3	— 0 22.6	+ 1.1

a T. III assumed as 56m.; not 57m.
b T. II assumed as 17s.; not 7s.
c Transits discordant.
d ζ assumed as 44° 22′ 42″; not 44° 22′ 32″.
e The name and transits and Mag. of this star (if a supposition be made that the minutes recorded should be 21 and 22 instead of 22 and 23) indicate it as 64 ν Ophiuchi; but the declination is that of a star (P. XVII. 307) following 64 ν by 58s. As the right-ascension can only be reduced harmoniously with the catalogue place of 64 ν Ophiuchi, the assumption of the error in minute-record is made, and observations of α of one star and δ of the other are separately entered in the Catalogue.
f Div. assumed as 83 15 0; not 83 15 1.
g Div. assumed as 52 0 9; not 52 0 8.
h T. I rejected; others discordant.
i ζ assumed as 46° 10′; not 46° 11′.

1783 APRIL 28—Continued Zero corr. = + 1′ 41″.5.

	Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	50 γ Aquilæ .		17 10 43.0	19 38 49.81	− 2 48.01	− 0.65	− 3.69	+ 10 4 42.6	− 0 46.3	− 1.8
	18 δ Cygni .		12 55.4	41 2.57	2 48.01	3.57	+ 1.81	+ 44 34 24.8	4.3	+ 5.0
	53 α Aquilæ .		14 55.2	43 2.70	2 48.01	0.53	− 1.44	+ 8 17 28.4	49.3	− 1.7
	60 β " . .		17 19 21.4	19 47 29.61	2 48.01	0.37	− 0.90	+ 5 51 46.6	53.7	− 1.5
	α Cygni . .		18 8 36.5	20 36 52.80	− 2 47.98	− 3.56	+ 1.79	+ 44 28 37.4	− 0 4.4	+ 4.9

1783 APRIL 29 Zero corr. = + 1′ 48″.5.

	Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
	Sirius . .		4 8 25.0	6 38 19.84	− 2 47.48	+ 1.07	+ 1.67	− 16 25 45.8	− 2 2.5	− 0.5
	α Geminorum		4 53 30.2	7 23 32.45	2 47.43	− 2.29	+ 1.39	+ 32 19 27.0	0 16.9	+ 2.5
	Procyon .		5 0 41.9	30 45.33	2 47.42	0.36	− 0.87	+ 5 45 8.6	53.0	− 1.5
	β Geminorum		5 4 46.2	7 34 50.30	2 47.42	1.96	+ 0.79	+ 28 30 43.6	21.1	+ 1.5
	1 κ Leonis . .		6 44 28.7	9 14 49.18	2 47.35	1.85	+ 0.24	+ 27 4 58.6	0 22.8	+ 1.0
	α Hydræ .							− 7 44 9.8	1 26.0	− 0.5
	ο Leonis . .		7 2 4.0	32 27.37	2 47.35	0.69	− 4.29	+ 10 51 10.2	0 44.5	− 1.9
	ε " . .							+ 24 44 30.4	25.5	+ 0.3
a)	μ " . .		12 48.7	43 13.84	2 47.33	1.84	+ 0.20	+ 26 59 47.4	22.8	+ 1.0
	19 Leon. Min.	5.6	16 45.4	47 11.19	2 47.33	3.27	+ 1.43	+ 42 3 11.1	6.8	+ 4.5
	29 π Leonis . .		21 8.3	51 34.81	2 47.33	0.57	− 1.67	+ 9 3 32.3	47.4	− 1.8
	21 Leon. Min.	5	26 57.8	57 25.27	2 47.32	2.66	+ 1.30	+ 36 16 5.0	12.7	+ 3.3
b)	30 η Leonis . .		27 52.4	58 20.00	2 47.32	1.17	− 1.40	+ 17 47 33.4	34.3	− 1.6
	Regulus .		29 11.6	9 59 39.42	2 47.32	0.83	− 1.79	+ 13 0 3.9	41.1	− 2.0
	34 Leon. Min.	7.8	32 19.8	10 2 48.14	2 47.32	0.93	− 1.62	+ 14 23 57.5	39.0	− 2.0
	36 ζ Leonis . .		36 51.2	7 20.28	2 47.32	1.66	− 0.51	+ 24 33 5.0	25.7	+ 0.2
			36 56.9	7 26.00	2 47.32	1.65	− 0.53	+ 24 28 8.3	25.8	+ 0.1
	41 γ " . .		40 20.8	10 50.46	2 47.32	1.39	− 1.15	+ 20 54 36.6	30.2	− 0.8
	43 " . .	6	43 58.4	14 28.66	2 47.31	0.48	− 1.28	+ 7 37 12.7	49.8	− 1.7
	44 " . .		46 9.1	16 39.72	2 47.31	0.63	− 3.31	+ 9 51 42.5	46.1	− 1.8
		7.8	46 29.2	16 59.88	2 47.31	0.63	− 2.99			
	45 " . .		48 32.9	19 3.92	2 47.31	0.68	− 4.26	+ 10 50 38.0	44.5	− 1.9
	31 Sextantis .	7	51 35.7	22 7.22	2 47.31	0.20	− 0.33	+ 3 14 36.5	58.0	− 1.2
	48 Leonis . .	5.6	55 46.5	26 18.70	2 47.31	0.51	− 1.38	+ 8 2 50.0	49.0	− 1.7
		8	57 2.2	27 34.60	2 47.30	0.51	− 1.40	+ 8 8 28.2	48.9	− 1.7
		7.8	7 59 37.5	30 10.33	2 47.30	2.92	+ 1.28	+ 38 56 24.5	10.0	+ 3.9
		8	8 2 21.7	32 54.97	2 47.30	0.98	− 1.57	+ 15 5 10.2	38.2	− 1.9
	52 κ Leonis . .		7 12.2	37 46.26	2 47.30	0.99	− 1.54	+ 15 18 54.4	37.8	− 1.9
	43 Leon. Min.		9 12.7	39 47.09	2 47.30	2.12	+ 1.26	+ 30 32 3.8	18.9	+ 2.1
	45 ω Ursæ Maj.		13 42.0	44 17.13	2 47.29	3.53	+ 1.75	+ 44 18 40.6	4.5	+ 4.9
	46 " . .		15 55.3	46 30.80	2 47.29	2.50	+ 1.36	+ 34 38 5.6	14.5	+ 3.0
c)	49 " . .		20 52.3	51 28.61	2 47.29	3.08	+ 1.32	+ 40 20 44.2	8.5	+ 4.2
		6.7	24 15.7	10 54 52.57	2 47.29	1.84	+ 0.17	+ 26 54 48.4	23.0	+ 1.0
		6	29 24.7	11 0 2.42	2 47.28	1.21	− 1.35	+ 18 21 34.2	33.7	− 1.5
d)		7	33 4.6	3 42.92	2 47.28	1.75	− 0.16	+ 25 48 8.0	24.3	+ 0.6
	68 δ Leonis . .		34 45.3	5 23.89	2 47.28	1.44	− 1.05	+ 21 41 9.8	29.3	− 0.6
	54 ν Ursæ Maj.		38 54.7	9 33.97	2 47.28	2.47	+ 1.38	+ 34 14 55.0	14.9	+ 2.9
	77 σ Leonis . .		42 7.5	12 47.30	2 47.27	0.46	− 1.19	+ 7 11 48.6	50.6	− 1.6
	79 " . .	5.6	45 3.4	15 43.68	2 47.27	0.16	− 0.21	+ 2 34 48.4	59.5	− 1.1
	83 " . .	7	47 55.0	18 35.75	2 47.27	0.26	− 0.49	+ 4 10 35.0	56.3	− 1.3
	84 τ " . .		48 55.0	19 35.91	2 47.27	0.25	− 0.45	+ 4 1 57.1	56.5	− 1.3
	88 " . .		52 42.2	23 23.73	2 47.27	1.01	− 1.52	+ 15 33 0.2	37.5	− 1.8
	90 " . .		55 33.5	26 15.50	2 47.27	1.17	− 1.39	+ 17 58 18.2	0 34.1	− 1.5
	91 υ " . .		8 57 56.8	28 39.19	2 47.26	0.02	+ 0.25	+ 0 21 25.4	1 4.5	− 0.8
e)	92 " . .		9 1 37.3	32 20.29	2 47.26	1.50	− 0.93	+ 22 32 0.2	0 28.3	− 0.3
	63 Ursæ Maj.		6 39.8	37 23.62	2 47.26	4.13	+ 3.24	+ 48 57 2.0	0.1	+ 5.6
	94 β Leonis . .		10 6.1	40 50.48	2 47.25	1.03	− 1.51	+ 15 45 45.6	37.2	− 1.8
f)	5 β Virginis .		11 27.4	42 12.00	2 47.25	0.17	− 0.28	+ 2 58 14.7	58.8	− 1.2
	65 Ursæ Maj.	6	15 51.3	46 36.62	2 47.25	3.97	+ 2.92	+ 47 39 12.5	1.1	+ 5.5
	1 Comæ . .	7	22 41.3	53 27.74	2 47.25	1.56	− 0.80	+ 23 16 44.0	27.4	− 0.2
	2 " . .		25 13.9	56 0.78	2 47.24	1.51	− 0.91	+ 22 38 37.4	28.1	− 0.3
		8.9	29 0.5	11 59 48.00	2 47.24	0.46	− 1.20	+ 7 13 38.9	50.6	− 1.6
	3 " . .		9 31 30.9	12 2 18.81	− 2 47.24	− 1.18	− 1.39	+ 17 59 42.8	− 0 34.1	− 1.5

a T. II assumed as 48m. 5s.; not 58m. 5s.
b ζ assumed as 31° 3′; not 31° 33′.
c Div. assumed as 9 1; not 9 10.
d ζ assumed as 23°; not 33°.
e Micr. corr. assumed as + 5; not − 5.
f ζ assumed as 45° 52′ 51″; not 45° 52′ 21″.

1783 APRIL 29—Continued Zero corr. = + 1′ 48″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
6 " . .		9 37 1.7	12 7 50.52	— 2 47.24	— 1.05	— 1.49	+ 16 5 9.7	— 0 36.8	— 1.8
14 Virginis .	7	40 8.7	10 58.03	2 47.24	+ 0.49	+ 1.88	— 7 42 58.2	1 26.2	— 0.5
	8	46 50.4	17 40.83	2 47.23	— 0.34	— 0.77	+ 5 23 9.4	0 54.2	— 1.4
	6.7	50 50.3	21 41.39	2 47.23	1.03	— 1.50	+ 15 49 48.5	37.2	— 1.8
a)	7	54 23.8	25 15.48	2 47.23	0.58	— 1.71	+ 9 7 47.0	47.5	— 1.8
	6	54 32.2	25 23.90	2 47.23	0.56	— 1.60	+ 8 51 20.0	47.9	— 1.8
	6	55 27.7	26 19.55	2 47.22	0.57	— 1.63	+ 8 54 58.5	47.8	— 1.8
	7	9 58 41.6	29 33.98	2 47.22	0.74	— 4.59	+ 11 45 34.0	43.2	— 2.0
b) 27 " . .	6	10 2 39.7	33 32.74	2 47.22	0.74	— 4.91	+ 11 35 54.5	43.6	— 2.0
30 ρ " . .		2 55.6	33 48.68	2 47.22	0.73	— 5.70	+ 11 24 46.0	43.8	— 1.9
33 " . .		7 21.2	38 15.00	2 47.22	— 0.68	— 4.17	+ 10 44 8.6	0 45.0	— 1.9
39 " . .	7	14 13.1	45 8.03	2 47.21	+ 0.50	+ 1.88	— 7 53 25.0	1 27.0	— 0.5
c) 40 ψ " . .		14 57.2	12 45 52.25	2 47.21	+ 0.53	+ 1.87	— 8 21 55.2	1 28.8	— 0.5
	7	37 20.6	13 8 19.33	2 47.20	— 0.48	— 1.29	+ 7 38 24.0	0 50.1	— 1.7
60 σ " . .		38 30.8	9 29.72	2 47.20	— 0.42	— 1.05	+ 6 35 56.0	0 52.0	— 1.6
62 " . .	7	40 45.1	11 44.39	2 47.19	+ 0.64	+ 1.79	— 10 9 58.2	1 35.2	— 0.4
	8	44 19.8	15 19.68	2 47.19	0.85	+ 1.58	— 13 16 10.0	1 48.0	— 0.3
67 a " . .		45 33.6	16 33.68	2 47.19	+ 0.64	+ 1.79	— 10 1 50.2	1 34.7	— 0.4
70 " . .	6.5	49 40.7	20 41.46	2 47.19	— 0.97	— 1.58	+ 14 55 15.2	0 38.6	— 1.9
	8	53 34.6	24 36.00	2 47.19	+ 0.10	+ 0.85	— 1 18 59.5	1 8.6	— 0.7
	7	10 58 31.2	13 29 33.41	— 2 47.18	— 0.22	— 0.36	+ 3 28 43.2	— 0 58.1	— 1.2

1783 APRIL 30 Zero corr. = + 1′ 50″.3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Capella		2 29 54.6	5 3 29.82	— 2 46.52	— 3.69	+ 2.28	+ 45 43 47.3	— 0 3.1	— 5.2
Rigel . .		33 15.5	6 51.27	2 46.52	+ 0.53	+ 1.87	— 8 28 19.8	1 27.8	— 0.5
112 β Tauri .		41 46.2	15 23.37	2 46.50	— 1.94	+ 0.73	+ 28 22 59.7	0 21.1	+ 1.4
50 ζ Orionis .		2 58 54.0	32 33.98	2 46.49	+ 0.13	+ 1.08	— 2 5 0.4	1 9.4	— 0.7
58 a " . .		3 12 31.7	5 46 13.92	2 46.48	— 0.46	— 1.23	+ 7 20 5.5	0 50.0	— 1.6
24 γ Geminorum		3 54 10.6	6 27 59.66	2 46.44	— 1.07	— 1.47	+ 16 32 56.9	0 35.9	— 1.7
Sirius . .		4 4 28.1	6 38 18.85	2 46.44	+ 1.06	+ 1.67	— 16 25 48.6	2 2.3	— 0.5
66 a Geminorum		49 33.3	7 23 31.46	2 46.39	— 2.29	+ 1.39	+ 32 19 25.0	0 16.9	+ 2.5
Procyon .		4 56 44.7	30 44.04	2 46.39	0.36	— 0.87	+ 5 45 6.2	53.0	— 1.5
78 β Geminorum		5 0 49.1	7 34 49.11	2 46.39	1.95	+ 0.79	+ 28 30 43.6	21.0	+ 1.5
12 κ Ursæ Maj.		6 17 20.6	8 51 33.18	2 46.33	3.99	+ 3.01	+ 47 58 26.8	0.9	+ 5.5
1 κ Leonis . .		40 31.4	9 14 47.79	2 46.31	— 1.84	+ 0.22	+ 27 4 58.0	0 22.8	+ 1.0
30 a Hydræ .		45 23.2	19 40.39	2 46.30	+ 0.49	+ 1.88	— 7 44 11.6	1 26.0	— 0.5
14 o Leonis . .		6 58 6.2	32 25.48	2 46.29	— 0.69	— 4.26	+ 10 51 10.5	0 44.5	— 1.9
17 ε " . .		7 1 59.7	36 19.61	2 46.29	1.66	— 0.45	+ 24 44 27.4	25.5	+ 0.3
24 μ " . .		8 51.7	43 12.74	2 46.28	1.83	+ 0.20	+ 26 59 46.2	22.9	+ 1.0
27 ν " . .		15 0.2	49 22.25	2 46.28	0.86	— 1.72	+ 13 27 9.8	40.6	— 2.0
29 π " . .		17 11.2	51 33.61	2 46.27	0.57	— 1.68	+ 9 3 32.2	47.4	— 1.8
429 Mayer . .	8	20 58.3	55 21.33	2 46.27	0.81	— 2.48	+ 12 39 0.2	41.7	— 2.0
30 η Leonis . .		23 55.4	58 18.91	2 46.27	1.15	— 1.40	+ 17 47 33.5	34.4	— 1.5
Regulus .		25 14.6	9 59 38.33	2 46.27	0.83	— 1.79	+ 13 0 2.2	41.2	— 2.0
33 λ Ursæ Maj.		32 22.1	10 6 47.00	2 46.26	3.47	+ 1.68	+ 43 57 43.0	4.9	+ 4.9
30 Leon. Min.		41 48.5	16 14.95	2 46.25	2.51	+ 1.34	+ 34 52 4.5	14.3	+ 3.1
31 " . .	6 5	43 39.8	18 6.55	2 46.25	2.79	+ 1.27	+ 37 47 9.7	11.2	+ 3.7
	6	46 24.8	20 52.00	2 46.25	2.75	+ 1.27	+ 37 21 18.6	11.6	+ 3.6
	5.6	48 53.6	23 21.21	2 46.25	3.19	+ 1.39	+ 41 30 30.2	7.4	+ 4.4
	7.8	52 27.4	26 55.60	2 46.25	3.95	+ 2.92	+ 47 38 19.8	1.2	+ 5.5
	7	55 27.5	29 56.19	2 46.24	3.99	+ 3.01	+ 47 56 17.6	0.9	+ 5.5
	6	59 4.5	33 33.78	2 46.24	3.90	+ 2.84	+ 47 18 35.0	1.5	+ 5.4
d)	7	7 59 32.5	34 1.86	2 46.24	3.90	+ 2.84	+ 47 18 50.5	1.5	+ 5.4
	7	8 3 52.2	38 22.27	2 46.24	3.12	+ 1.36	+ 40 51 19.6	8.0	+ 4.2
	8	5 15.0	39 45.30	2 46.24	3.30	+ 1.47	+ 42 30 14.9	6.4	+ 4.6
45 Leon. Min.	6	9 11.7	43 42.65	2 46.23	1.99	+ 0.98	+ 28 59 9.1	20.7	+ 1.6
47 " . .	6	11 9.8	45 41.07	2 46.23	2.54	+ 1.33	+ 35 9 43.8	13.9	+ 3.1
	6	15 41.1	50 13.11	2 46.23	2.74	+ 1.27	+ 37 13 40.6	11.7	+ 3.5
	7	20 26.0	54 58.79	2 46.22	3.02	+ 1.31	+ 40 0 20.7	8.9	+ 4.1
	7	8 24 52.2	10 59 25.72	— 2 46.22	— 2.73	+ 1.27	+ 37 9 15.0	— 0 11.8	+ 3.5

a T. III assumed as 47s.; not 27s.
b ζ assumed as 37°; not 39°.
c Div. assumed as 61 0 8; not 61 8 0.
d T. I assumed as 22s.; not 23s.: and Div. assumed as 8 8 7; not 8 8 46.

1783 APRIL 30—Continued Zero corr. = + 1′ 50″.3.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	8 25 36.4	11 0 10.04	— 2 46.22	— 2.76	+ 1.27	+ 37 27 21.4	— 0 11.5	+ 3.5
	7.8	28 33.2	3 7.32	2 46.22	2.82	+ 1.27	+ 38 2 28.8	11.0	+ 3.7
a) 54 ν Ursæ Maj.		34 57.3	9 32.47	2 46.21	2.45	+ 1.38	+ 34 14 56.2	14.9	+ 2.9
	6	36 2.7	10 38.05	2 46.21	2.43	+ 1.39	+ 33 58 52.3	15.1	+ 2.9
	8	37 55.2	12 30.86	2 46.21	3.20	+ 1.39	+ 41 35 35.0	7.3	+ 4.4
	7	39 4.3	13 40.16	2 46.21	3.17	+ 1.38	+ 41 20 5.2	7.5	+ 4.3
	9.10	43 55.4	18 32.06	2 46.20	3.92	+ 2.87	+ 47 27 39.5	1.4	+ 5.4
	7	46 57.7	21 34.86	2 46.20	3.57	+ 1.87	+ 44 44 23.2	4.1	+ 5.0
	6.7	50 34.0	25 11.75	2 46.20	2.81	+ 1.27	+ 37 59 16.2	11.0	+ 3.7
	6	53 2.4	27 40.56	2 46.19	1.99	+ 0.96	+ 28 57 12.0	20.8	+ 1.6
		8 57 45.7	32 24.63	2 46.19	2.56	+ 1.32	+ 35 23 54.1	13.7	+ 3.2
62 " . .		9 0 17.3	34 56.65	2 46.19	2.33	+ 1.40	+ 32 56 25.4	16.3	+ 2.7
	6.7	3 54.6	38 34.54	2 46.19	1.67	— 0.41	+ 24 53 58.4	25.4	+ 0.4
	6	6 32.2	41 12.57	2 46.18	2.62	+ 1.30	+ 36 6 33.2	13.0	+ 3.3
	9	7 1.4	41 41.85	2 46.18	2.61	+ 1.31	+ 35 58 5	13.1	+ 3.3
	7	10 40.8	45 21.85	2 46.18	3.25	+ 1.44	+ 42 5 37.2	6.8	+ 4.5
	7.8	12 55.3	47 36.72	2 46.18	3.22	+ 1.41	+ 41 49 39.0	7.0	+ 4.5
	7.6	14 10.7	48 52.33	2 46.18	3.19	+ 1.39	+ 41 31 29.4	7.4	+ 4.4
b)	8	17 19.7	52 1.85	2 46.17	3.70	+ 2.32	+ 45 48 26.2	3.0	+ 5.2
67 " . .	6	19 10.9	53 53.35	2 46.17	3.51	+ 1.73	+ 44 13 14.0	4.6	+ 4.9
	7	19 34.0	54 16.51	2 46.17	3.51	+ 1.75	+ 44 17 40.0	4.6	+ 4.9
	9	23 22.7	58 5.84	2 46.17	3.92	+ 2.87	+ 47 27 45.0	1.4	+ 5.4
	8.9	25 13.1	11 59 56.54	2 46.17	3.11	+ 1.36	+ 40 50 4.3	8.1	+ 4.3
c)	7.8	27 54.2	12 2 38.08	2 46.17	3.14	+ 1.37	+ 41 4 13.7	7.9	+ 4.3
		31 33.9	6 18.38	2 46.16	4.04	+ 3.08	+ 48 13 20.0	0.6	+ 5.5
		32 27.8	7 12.43	2 46.16	4.04	+ 3.09	+ 48 17 34.0	0.6	+ 5.5
d)	8	36 20.3	11 5.57	2 46.16	3.18	+ 1.39	+ 41 29 22.0	7.4	+ 4.3
e)	8	38 23.1	13 8.71	2 46.16	3.82	+ 2.64	+ 46 41 28.0	2.2	+ 5.4
4 Can. Ven.	7	41 8.6	15 54.66	2 46.15	3.44	+ 1.63	+ 43 42 58.6	5.2	+ 4.8
	7	44 56.0	19 42.68	2 46.15	3.30	+ 1.47	+ 42 31 39.0	6.4	+ 4.6
	8	47 38.2	22 25.32	2 46.15	3.07	+ 1.33	+ 40 25 34.3	8.5	+ 4.1
	7	48 28.2	23 15.46	2 46.15	3.10	+ 1.35	+ 40 45 15.0	8.1	+ 4.3
f 8 " . .	5	51 27.3	26 15.05	2 46.15	3.30	+ 1.47	+ 42 30 29.5	6.4	+ 4.6
	8.9	53 15.6	28 3.65	2 46.14	3.12	+ 1.36	+ 40 51 9.5	8.1	+ 4.3
9 " . .	7	56 20.0	31 8.55	2 46.14	3.24	+ 1.43	+ 42 2 26.0	6.9	+ 4.5
	6.7	9 59 47.5	34 36.62	2 46.14	2.51	+ 1.34	+ 34 51 30.5	14.3	+ 3.1
	6.5	10 2 55.2	37 44.83	2 46.14	3.81	+ 2.61	+ 46 35 52.0	2.2	+ 5.4
30 Comæ . .	7	10 6 41.2	12 41 31.45	— 2 46.13	— 1.97	+ 0.86	+ 28 42 36.1	— 0 21.0	+ 1.5

1783 MAY 1 Zero corr. = + 1′ 49″.5.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ—φ	Refr.	q′
31 Leon. Min.	5.6	7 39 42.8	10 18 5.48	— 2 44.91	— 2.78	+ 1.27	+ 37 47 9.1	— 0 11.1	+ 3.7
450 Mayer . .	7.8	42 10.2	20 33.28	2 44.91	0.71	— 4.77	+ 11 14 26.5	43.8	— 1.9
47 ρ Leonis . .		45 49.2	24 12.88	2 44.91	0.66	— 3.95	+ 10 23 50.6	45.2	— 1.8
	7	48 17.5	26 41.59	2 44.90	0.21	— 0.33	+ 3 18 15.0	58.0	— 1.2
50 " . .	7	51 39.8	30 4.44	2 44.90	1.11	— 1.42	+ 17 13 57.0	35.0	— 1.7
	6.5	55 7.1	33 32.31	2 44.90	3.88	+ 2.84	+ 47 18 35.0	1.6	+ 5.4
	7	55 35.3	34 0.59	2 44.90	3.88	+ 2.84	+ 47 18 47.0	1.6	+ 5.4
	7	7 59 54.7	38 20.70	2 44.90	3.09	+ 1.36	+ 40 51 15.0	8.0	+ 4.3
	8	8 2 47.3	41 13.77	2 44.89	2.33	+ 1.40	+ 33 8 44.1	16.0	+ 2.7
	8	4 55.4	43 22.22	2 44.89	2.42	+ 1.38	+ 34 6 45.6	15.0	+ 2.9
g) 46 Leon. Min.	5.6	5 28.8	43 55.71	2 44.89	2.54	+ 1.32	+ 35 21 13.0	13.7	+ 3.1
47 " "	6	7 12.8	45 40.00	2 44.89	2.52	+ 1.33	+ 35 9 43.0	13.8	+ 3.1
46 Ursæ Maj.		8 1.0	46 28.33	2 44.89	2.47	+ 1.36	+ 34 38 4.9	14.4	+ 3.0
	6.7	11 43.8	50 11.74	2 44.88	2.72	+ 1.27	+ 37 13 38.9	11.7	+ 3.5
49 " "	6.7						+ 40 20 47.0	8.5	+ 4.1
	7.8	15 39.0	54 7.58	2 44.88	3.64	+ 2.18	+ 45 28 9.7	3.4	+ 5.1
	8	18 46.3	10 57 15.39	2 44.88	3.61	+ 2.08	+ 45 15 14.8	3.6	+ 5.1
52 ψ " "		21 43.6	11 0 13.17	2 44.87	3.66	+ 2.25	+ 45 38 33.8	3.2	+ 5.2
469 Mayer . .	6	8 26 34.3	11 5 4.67	— 2 44.87	— 1.40	— 1.10	+ 21 17 27.4	— 0 29.7	— 0.8

a Micr. corr. assumed as — 7; not + 7.
b ζ assumed as 3° 2′ 40″; not 3° 2′ 30″: Div. assumed as 3 3 15; not 3 3 16; and Micr. corr. + 2, not — 2.
c T. III assumed as 28s.; not 25s.
d ζ assumed as 7° 21′ 42″; not 7° 22′ 12″.
e Transits over Ts. II and III assumed as recorded over Ts. I and II.
f T. III assumed as 58s.5; not 28s.5.
g Minute assumed as 5; not 57.

1783 MAY 1—Continued — Zero corr. = + 1′ 49″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	8 27 12.1	11 5 42.57	− 2 44.87	− 1.39	− 1.11	+ 21 11		
	6.7	36 32.7	15 4.91	2 44.86	1.19	− 1.36	+ 18 18 30.0	− 0 33.7	− 1.5
81 Leonis		38 32.8	17 5.14	2 44.86	1.14	− 1.41	+ 17 37 31.0	34.6	− 1.6
86 "		43 24.4	21 57.54	2 44.86	1.28	− 1.27	+ 19 34 49.2	32.0	− 1.2
	7	8 55 29.9	34 5.03	2 44.85	0.23	− 0.37	+ 3 32 51.0	57.5	− 1.3
4 ζ^2 Virginis		9 0 57.9	39 33.93	2 44.84	0.61	− 2.04	+ 9 25 48.4	46.9	− 1.8
	7	3 59.2	42 35.73	2 44.84	0.86	− 1.72	+ 13 27 46.0	0 40.6	− 2.0
493 Mayer	7	12 6.3	11 50 44.15	2 44.83	0.11	− 0.05	+ 1 43 17.0	1 1.3	− 1.0
13 n Virginis	6	31 38.8	12 10 19.86	2 44.82	0.03	+ 0.14	+ 0 24 16.0	4.2	− 0.8
15 η "		32 53.6	11 34.87	2 44.82	0.03	+ 0.20	+ 0 31 27.6	1 4.0	− 0.9
	7	39 11.4	17 53.70	2 44.81	1.10	− 1.43	+ 17 2 39.8	0 35.4	− 1.7
	8	43 41.0	22 24.04	2 44.81	0.69	− 4.32	+ 10 53 58.0	44.6	− 1.9
	7	46 37.7	25 21.22	2 44.80	0.57	− 1.60	+ 8 51 22.0	47.9	− 1.8
	7	47 33.7	26 17.37	2 44.80	0.57	− 1.62	+ 8 54 59.5	47.7	− 1.8
	6.7	50 14.2	28 58.31	2 44.80	− 0.63	− 3.56	+ 9 58 24.0	0 46.1	− 1.8
		52 19.9	31 4.35	2 44.80	+ 0.32	+ 1.72	− 4 55 4.5	1 17.9	− 0.5
29 γ Virginis		54 41.5	33 26.34	2 44.80	+ 0.02	+ 0.45	− 0 16 17.8	1 5.8	− 0.8
33 "	6.7	9 59 26.8	38 12.42	2 44.79	− 0.68	− 4.17	+ 10 44 5.0	0 44.9	− 1.9
	6.7	10 0 8.6	38 54.35	2 44.79	0.65	− 3.85	+ 10 14 1.0	45.6	− 1.8
		1 27.6	40 13.57	2 44.79	0.65	− 3.72	+ 10 16 36.6	45.6	− 1.8
	7	4 25.3	43 11.76	2 44.79	0.59	− 1.92	+ 9 22 26.0	47.1	− 1.8
	7	8 9.4	46 56.47	2 44.79	0.26	− 0.49	+ 4 12 35.0	56.5	− 1.3
43 δ "		8 40.6	47 27.75	2 44.79	− 0.28	− 0.56	+ 4 33 45.0	0 55.7	− 1.4
	8	13 9.4	51 57.29	2 44.78	+ 0.50	+ 1.88	− 7 56 6.0	1 27.2	− 0.5
a)	8	17 26.2	12 56 14.74	2 44.78	0.47	+ 1.88	− 7 24 44.0	25.6	− 0.5
51 θ "		22 39.5	13 1 28.95	2 44.77	0.28	+ 1.64	− 4 23 19.8	16.5	− 0.6
b) 56 "		27 18.2	6 8.41	2 44.77	0.58	+ 1.84	− 9 13 20.5	31.6	− 0.4
		34 52.1	13 43.55	2 44.76	0.22	+ 1.45	− 3 32 10.0	14.2	− 0.6
65 "		10 35 58.6	13 14 50.23	− 2 44.76	+ 0.24	+ 1.52	− 3 47 49.0	− 1 15.0	− 0.6

1783 MAY 2 — Zero corr. = + 1′ 47″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
30 α Hydræ		6 37 28.7	9 19 37.70	− 2 43.69	+ 0.49	+ 1.88	− 7 44 8.0	− 1 26.0	− 0.5
24 μ Leonis		7 0 57.1	43 9.96	2 43.67	− 1.83	+ 0.20	+ 26 59 47.4	0 22.8	+ 1.0
29 π "		9 16.4	51 30.62	2 43.66	0.57	− 1.68	+ 9 3 35.0	47.3	− 1.8
c) 30 η "		16 1.3	58 16.63	2 43.66	1.16	− 1.40	+ 17 47 35.0	34.3	− 1.5
Regulus		17 20.0	9 59 35.55	2 43.66	0.83	− 1.79	+ 13 0 5.6	41.1	− 2.0
42 Leonis	6	30 38.6	10 12 56.34	2 43.64	1.03	− 1.49	+ 16 2 34.2	36.6	− 1.8
44 "		34 18.1	16 36.44	2 43.64	0.63	− 3.30	+ 9 51 47.0	46.1	− 1.8
450 Mayer	7.8	38 13.1	20 31.98	2 43.64	0.72	− 4.77	+ 11 14 29.8	43.8	− 1.9
	7	44 19.5	26 39.48	2 43.63	0.21	− 0.33	+ 3 18 17.0	58.0	− 1.2
50 Leonis	7	47 42.0	30 2.53	2 43.63	1.12	− 1.42	+ 17 13 53.0	35.0	− 1.7
40 Leon Min.	6.5	51 30.6	33 51.76	2 43.63	1.87	+ 0.36	+ 27 26 9.4	22.3	+ 1.1
42 " "	5	54 10.2	36 31.80	2 43.63	2.23	+ 1.38	+ 31 47 43.5	17.5	+ 2.5
	8	54 12.2	36 33.80	2 43.63	2.23	+ 1.37	+ 31 44 24.0	17.5	+ 2.5
	7.8	7 58 50.7	41 13.06	2 43.62	2.35	+ 1.40	+ 33 8 47.8	15.9	+ 2.7
46 " "		8 1 31.6	43 54.40	2 43.62	2.56	+ 1.32	+ 35 21 12.9	13.7	+ 3.1
46 Ursæ Maj.	6	4 4.3	46 27.52	2 43.62	− 2.49	+ 1.36	+ 34 38 3.6	0 14.4	+ 3.0
	8	9 18.5	51 42.58	2 43.61	+ 0.15	+ 1.15	− 2 19 39.1	1 10.5	− 0.7
63 χ Leonis		14 11.2	56 36.08	2 43.61	− 0.54	− 1.49	+ 8 29 12.0	0 48.2	− 1.7
	7.8	15 15.2	10 57 40.26	2 43.61	0.52	− 1.44	+ 8 17 10.0	48.7	− 1.7
d)	7	27 58.4	11 10 25.55	2 43.60	1.00	− 1.52	+ 15 ½		
e)	8	29 21.4	11 48.78	2 43.60	1.20	− 1.34	+ 18 28 34.0	33.4	− 1.4
	8	31 27.2	13 54.92	2 43.59	1.21	− 1.33	+ 18 36 13.0	33.2	− 1.4
81 Leonis	7	34 36.5	17 4.74	2 43.59	1.14	− 1.41	+ 17 37 33.6	34.5	− 1.6
86 "	6	39 27.4	21 56.44	2 43.59	1.28	− 1.26	+ 19 34 51.0	31.9	− 1.2
	7	40 29.7	22 58.91	2 43.59	1.23	− 1.32	+ 18 55 33.7	32.7	− 1.3
	7.8	41 49.6	24 19.03	2 43.59	1.25	− 1.30	+ 19 10 35.0	32.4	− 1.3
	7	44 40.1	27 9.99	2 43.58	1.24	− 1.31	+ 19 3 1.4	32.6	− 1.3
f)	7	51 44.8	34 15.85	2 43.58	1.27	− 1.28	+ 19 25 21.3	32.1	− 1.2
		8 54 21.3	11 36 52.98	− 2 43.58	− 1.39	− 1.12	+ 21 4 26.2	− 0 30.0	− 0.8

a T. III assumed as 17m. 49s.5; not 17m. 29s.5.
b ζ assumed as 58° 4′ 25″.5; not 58° 4′ 15″.5.
c Minute assumed as 16.
d ζ and Div. reading discordant.
e Transits over Ts. II and III assumed as recorded over Ts. I and II.
f ζ assumed as 29° 25′; not 29° 30′.

1783 MAY 2—Continued Zero corr. = + 1′ 47″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	6	8 56 0.6	11 38 32.35	− 2 43.57	− 1.67	− 0.41	+ 24 54 1.0	− 0 25.3	+ 0.4
	6	9 0 2.2	42 34.61	2 43.57	0.86	− 1.72	+ 13 27 50.0	40.5	− 2.0
	8.9	2 47.4	45 20.26	2 43.57	0.62	− 3.01	+ 9 45 35.0	46.2	− 1.8
6 A Virginis		4 9.2	46 42.28	2 43.57	0.61	− 2.58	+ 9 37 55.2	46.4	− 1.8
	8	6 51.2	49 24.72	2 43.57	0.52	− 1.41	+ 8 10 4.0	48.8	− 1.7
8 π "		9 58.2	52 32.23	2 43.56	0.49	− 1.32	+ 7 48 22.6	49.4	− 1.7
	8	17 9.2	11 59 44.41	2 43.56	0.46	− 1.20	+ 7 13 40.4	50.3	− 1.6
	9	21 23.7	12 3 59.61	2 43.55	0.45	− 1.16	+ 7 3 59.4	50.7	− 1.6
17 "		31 39.5	14 17.10	2 43.54	0.41	− 1.04	+ 6 29 47.0	51.8	− 1.5
	7	35 14.3	17 52.50	2 43.54	1.10	− 1.43	+ 17 2 43.0	35.2	− 1.7
	6	38 58.5	21 37.31	2 43.54	1.03	− 1.50	+ 15 49 50.5	37.0	− 1.8
		42 40.3	25 19.71	2 43.53	0.75	− 4.43	+ 11 51 25.0	1 42.9	− 2.0
		43 36.7	26 16.26	2 43.53	− 0.57	− 1.63	+ 8 55		
29 γ "		9 50 45.2	33 25.93	2 43.53	+ 0.02	+ 0.45	− 0 16 12.5	1 5.5	− 0.8
43 δ "		10 4 44.2	47 27.23	2 43.52	− 0.29	− 0.56	+ 4 33 50.4	0 55.4	− 1.4
38 Comæ	6	10 29.8	53 13.78	2 43.51	1.19	− 1.36	+ 18 16 30.1	33.7	− 1.5
39 "	6	15 49.8	12 58 34.66	2 43.51	1.48	− 0.97	+ 22 17 56.4	28.4	− 0.5
42 "	6	10 19 28.5	13 2 13.96	− 2 43.50	− 1.22	− 1.33	+ 18 39 33.2	− 0 33.2	− 1.4

1783 MAY 3 Zero corr. = + 1′ 46″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
66 α Geminorum		4 37 41.7	7 23 27.58	− 2 42.61	− 2.29	+ 1.39	+ 32 19 20.7	− 0 16.8	+ 2.5
Procyon		44 53.3	30 40.36	2 42.61	0.36	− 0.87	+ 5 45 9.4	52.9	− 1.5
78 β Geminorum		4 48 57.6	7 34 45.33	2 42.60	1.96	+ 0.79	+ 28 30 42.4	21.0	+ 1.5
Regulus		7 13 23.2	9 59 34.66	2 42.51	0.83	− 1.79	+ 13 0 5.9	40.9	− 2.0
36 ζ Leonis		21 8.8	10 7 21.53	2 42.50	1.65	− 0.53	+ 24 28 7.6	25.7	+ 0.1
41 γ "		24 32.6	10 45.89	2 42.50	1.39	− 1.15	+ 20 54 37.4	30.1	− 0.8
51 m "		7 51 10.7	37 28.37	2 42.48	1.32	− 1.23	+ 20 0 34.5	31.2	− 1.1
55 "		8 0 57.1	47 16.37	2 42.47	0.12	− 0.08	+ 1 53		
52 Leon. Min.		11 48.6	58 9.66	2 42.47	1.82	+ 0.08	+ 26 40 56.0	23.1	+ 0.9
53 " "		13 34.0	10 59 55.35	2 42.47	1.75	− 0.16	+ 25 48 22.6	24.1	+ 0.6
	6	16 45.3	11 3 7.17	2 42.46	1.01	− 1.52	+ 15 33 23.9	37.2	− 1.8
68 δ Leonis		18 57.1	5 19.33	2 42.46	1.44	− 1.05	+ 21 41 14.2	29.1	− 0.6
55 Ursæ Maj.	6	23 38.7	10 1.70	2 42.46	2.97	+ 1.28	+ 39 20 43.2	9.5	+ 3.9
a)	8.9	25 24.7	11 48.00	2 42.46	1.21	− 1.34	+ 18 28 35.0	33.3	− 1.5
81 Leonis	7	8 30 39.5	11 17 3.66	− 2 42.45	− 1.15	− 1.41	+ 17 37 35.0	− 0 34.4	− 1.6

1783 MAY 4 Zero corr. = + 1′ 47″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	6.7	10 2 16.9	12 52 52.65	− 2 41.45	− 0.35	− 0.81	+ 5 30 46.4	− 0 53.5	− 1.4
39 Comæ		7 55.7	12 58 32.38	2 41.45	1.48	− 0.97	+ 22 17 48.2	28.4	− 0.5
42 "		11 34.7	13 2 11.98	2 41.45	− 1.23	− 1.33	+ 18 39 27.6	0 33.1	− 1.4
55 Virginis		14 38.7	5 16.80	2 41.45	+ 1.24	+ 1.46	− 18 46 55.0	2 16.9	− 0.7
57 "		16 19.2	6 57.25	2 41.45	+ 1.24	+ 1.46	− 18 46 45.0	2 16.9	− 0.7
	6	21 42.5	12 21.30	2 41.44	− 0.38	− 0.92	+ 5 57 11.7	0 52.5	− 1.5
67 α "		25 48.6	16 28.20	2 41.44	+ 0.64	+ 1.79	− 10 1 54.5	1 33.9	− 0.4
69 "							− 14 50 42.6	54.3	− 0.5
	7.8	31 42.2	22 22.77	2 41.44	0.12	+ 1.05	− 1 56 25.9	9.5	− 0.7
	8	34 56.8	25 37.90	2 41.44	+ 0.48	+ 1.88	− 7 30 33.8	1 25.2	− 0.5
	9	42 53.0	33 35.40	2 41.43	− 0.37	− 0.90	+ 5 51 29.0	0 53.0	− 1.5
	6.7	48 4.2	38 47.45	2 41.43	+ 0.36	+ 1.80	− 5 37 26.0	1 19.3	− 0.5
88 "		48 56.1	39 39.49	2 41.43	+ 0.36	+ 1.82	− 5 45 31.4	19.9	− 0.5
	7.8	53 35.0	44 19.15	2 41.43	− 0.12	− 0.08	+ 1 53 9.0	0.9	− 1.0
92 "		10 57 25.0	48 9.78	2 41.43	0.13	− 0.12	+ 2 6 11.0	1 0.3	− 1.0
b) 93 τ "		11 2 35.0	53 20.67	2 41.42	− 0.16	− 0.21	+ 2 35 4.8	0 59.3	− 1.1
	9	7 52.7	13 58 39.23	2 41.42	+ 0.59	+ 1.83	− 9 17 20.0	1 31.1	− 0.4
96 "	6	9 22.7	14 0 9.48	2 41.42	0.59	+ 1.83	− 9 18 24.4	31.3	− 0.4
c) 98 κ "		13 14.7	4 2.12	2 41.42	0.59	+ 1.83	− 9 15 50.7	31.0	− 0.4
d) 99 ι "		11 16 33.4	14 7 21.36	− 2 41.42	+ 0.31	+ 1.69	− 4 58 6.8	− 1 17.7	− 0.5

a Min. assumed as 25m; not 24m.
b Min. assumed as 2m.; not 0m.
c Div. assumed as 61 15 13; not 61 15 14.
d ζ assumed as 53° 49′ 11″.5; not 53° 49′ 21″.5.

1783 MAY 4—Continued — Zero corr. = + 1′ 47″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8	11 18 29.0	14 9 17.28	— 2 41.42	+ 0.31	+ 1.69	— 4 58 17.6	— 1 17.7	— 0.5
104 Virginis .		27 54.1	18 43.93	2 41.41	0.32	+ 1.76	— 5 9		
106 " . .		29 7.8	19 57.83	2 41.41	0.37	+ 1.83	— 5 55 42.2	20.3	— 0.5
a)	7	34 5.0	24 55.84	2 41.41	0.37	+ 1.83	— 5 55 1.0	20.3	— 0.5
	6.7	38 20.8	29 12.34	2 41.41	0.29	+ 1.69	— 4 36 29.0	16.6	— 0.5
4 Libræ . .		42 31.2	33 23.42	2 41.40	1.62	+ 2.23	— 24 2 37.7	3 2.1	— 1.8
5 " . .		45 50.3	36 43.06	2 41.40	0.93	+ 1.59	— 14 32 12.6	1 52.8	— 0.5
b) 6 " . .	5	49 20.7	40 14.03	2 41.40	1.84	+ 3.65	— 27 1 7.5	3 41.3	— 3.2
c) 12 " . .		53 32.4	44 26.42	2 41.40	1.60	+ 2.11	— 23 43 34.8	2 58.8	— 1.7
d) 14 " . .		11 56 38.7	47 33.23	2 41.40	1.66	+ 2.46	— 24 32 9.0	3 7.5	— 2.0
19 δ " . .		12 1 10.5	52 5.78	2 41.39	0.49	+ 1.88	— 7 39 24.7	1 25.8	— 0.5
		2 16.3	53 11.76	2 41.39	0.47	+ 1.88	— 7 29 15.7	25.2	— 0.5
21 ν^1 " . .		6 18.3	57 14.42	2 41.39	1.00	+ 1.63	— 15 24 13.5	1 57.3	— 0.5
22 ν^2 " . .		6 29.6	14 57 25.75	2 41.39	1.02	+ 1.63	— 15 38		
24 ι^1 " . .		11 37.8	15 2 34.79	2 41.39	1.25	+ 1.44	— 18 57 11.6	2 18.4	— 0.7
25 ι^2 " . .		12 43.1	3 40.27	2 41.39	1.24	+ 1.46	— 18 48 47.0	2 17.5	— 0.7
27 β " . .		17 4.6	8 2.48	2 41.39	0.54	+ 1.87	— 8 34 45.8	1 28.8	— 0.4
29 o^1 " . .		20 38.3	11 36.77	2 41.38	0.96	+ 1.60	— 14 45 14.6	54.1	— 0.5
31 ε " . .		24 9.8	15 8.85	2 41.38	0.62	+ 1.82	— 9 32 14.6	1 32.4	— 0.4
32 ζ^1 " . .		27 44.5	18 44.14	2 41.38	1.04	+ 1.65	— 15 56 44.5	2 0.3	— 0.5
34 ζ^4 " . .		32 22.2	23 22.60	2 41.38	1.05	+ 1.67	— 16 6 10.7	2 1.1	— 0.5
29 o^1 " . .	6	35 5.2	26 6.05	2 41.38	0.91	+ 1.58	— 14 3 18.3	1 50.9	— 0.4
41 " . .		38 6.4	29 7.75	2 41.38	1.22	+ 1.48	— 18 34 5.8	2 15.9	— 0.7
43 κ " . .		41 7.4	32 9.25	2 41.37	1.25	+ 1.44	— 18 57 19.7	18.5	— 0.7
	7.8	44 34.7	35 37.11	2 41.37	1.21	+ 1.51	— 18 24 17.5	2 14.9	— 0.6
	7	47 32.2	38 35.10	2 41.37	0.56	+ 1.86	— 8 48 10.8	1 29.9	— 0.4
45 λ " . .		52 23.2	43 26.89	2 41.37	1.28	+ 1.40	— 19 29 47.4	2 22.4	— 0.7
	6	55 59.2	47 3.49	2 41.37	0.92	+ 1.58	— 14 10 56.0	1 51.6	— 0.4
49 " . .		12 59 46.9	50 51.81	2 41.36	1.03	+ 1.65	— 15 52 46.1	2 0.0	— 0.5
51 ξ " . .		13 4 2.9	15 55 8.51	2 41.36	+ 0.68	+ 1.73	— 10 46 5.2	1 37.0	— 0.3
	5	9 47.0	16 0 53.55	2 41.36	— 0.25	— 0.45	+ 4 1 24.8	0 56.5	— 1.3
1 δ Ophiuchi .		13 14 34.4	16 5 41.74	— 2 41.36	+ 0.20	+ 1.37	— 3 8 10.5	— 1 12.9	— 0.7
1783 MAY 9 — Zero corr. = + 1′ 48″.6.									
66 α Geminorum	2	4 14 1.7	7 23 23.03	— 2 38.04	— 2.34	+ 1.39	+ 32 19 22.0	— 0 16.8	+ 2.5
Procyon .	1	21 13.0	30 35.51	2 38.04	0.37	— 0.87	+ 5 45 5.4	52.7	— 1.5
78 β Geminorum		25 17.7	7 34 40.88	2 38.03	2.01	+ 0.79	+ 28 30 41.6	20.9	+ 1.5
30 η Leonis . .		6 48 23.7	9 58 10.39	2 37.96	1.19	— 1.40	+ 17 47 31.0	34.0	— 1.5
Regulus .		6 49 42.9	9 59 29.81	2 37.96	0.85	— 1.79	+ 13 0 2.4	40.8	— 2.0
41 γ Leonis . .		7 0 52.0	10 10 40.74	2 37.96	1.41	— 1.15	+ 20 54 35.6	30.0	— 0.8
e) 47 ρ " . .		14 14.5	24 5.44	2 37.95	0.68	— 3.95	+ 10 23 53.2	44.9	— 1.8
37 Leon. Min.		19 16.6	29 8.37	2 37.95	2.41	+ 1.40	+ 33 4 19.4	16.0	+ 2.7
41 " "		24 23.9	34 16.51	2 37.95	1.67	— 0.57	+ 24 17 44.8	25.9	+ 0.1
53 l Leonis . .		30 41.0	40 34.64	2 37.94	0.76	— 4.75	+ 11 40 5	0 43.0	— 2.0
55 " . .	5.6	37 17.1	10 47 11.62	2 37.94	0.12	— 0.08	+ 1 52 26.9	1 0.6	— 1.0
	6.7	7 53 14.1	11 3 11.44	2 37.93	— 2.68	+ 1.31	+ 35 56 11.2	0 13.0	+ 3.3
Double .		8 1 0.1	10 58.72	2 37.93	+ 0.03	+ 0.53	— 0 28 35.0	1 5.8	— 0.8
		1 42.7	11 41.44	2 37.93	— 1.25	— 1.34	+ 18 28 33.6	0 33.3	— 1.4
		4 49.1	14 48.35	2 37.93	2.93	+ 1.27	+ 38 23 44.6	10.5	+ 3.7
	6	11 13.2	21 13.50	2 37.92	2.24	+ 1.32	+ 31 8 42.0	18.1	+ 2.2
		12 51.9	22 52.47	2 37.92	1.27	— 1.32	+ 18 55 28.1	32.7	— 1.3
	7	14 12.6	24 13.39	2 37.92	1.29	— 1.30	+ 19 10 35.0	32.3	— 1.3
f)	6	17 30.0	27 31.33	2 37.92	2.05	+ 0.95	+ 28 57 12.2	20.6	+ 1.6
62 Ursæ Maj.	6.7	22 53.7	32 55.91	2 37.92	2.40	+ 1.40	+ 32 55 11.0	16.2	+ 2.7
	7.8	24 45.6	34 48.12	2 37.92	2.40	+ 1.40	+ 32 56 25.2	16.2	+ 2.7
	7	32 24.7	42 28.48	2 37.91	0.89	— 1.72	+ 13 27 47.0	40.3	— 2.0
g)	7.8	32 56.4	43 0.27	2 37.91	0.85	— 1.79	+ 12 59 34.0	41.0	— 2.0
65 " . .	7	36 22.0	46 26.43	2 37.91	4.06	+ 2.93	+ 47 39 13.5	1.2	+ 5.4
492 Mayer . .	7	39 41.8	49 46.78	2 37.91	0.30	— 0.59	+ 4 40 23.6	54.9	— 1.4
7 b Virginis .	7	8 41 25.0	11 51 30.26	— 2 37.91	— 0.31	— 0.63	+ 4 50 48.4	— 0 54.6	— 1.4

a ζ assumed as 54° 46′ 8″; not 54° 46′ 38″.
b Micr. corr. assumed as + 5; not — 5.
c T. I rejected.
d ζ assumed as 73° 23′; not 73° 28′.
e T. III rejected.
f Ts. II and III assumed as 17m. 29s.5, and 17m. 56s.; not 17m. 39s.5, and 18m. 6s.
g ζ assumed as 35° 51′ 31″; not 35° 51′ 41″.

1783 MAY 9—Continued Zero corr. = + 1′ 48″.6.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h. m. s.	h. m. s.	m. s.	s.	s.	° ′ ″	′ ″	″
	9 o Virginis		8 46 45.7	11 56 51.84	− 2 37.91	− 0.65	− 3.44	+ 9 55 8.1	− 0 45.8	− 1.8
a)	10 r "		51 7.2	12 1 14.06	2 37.90	0.20	− 0.30	+ 3 6 0.0	1 0.1	− 1.2
	4 Comæ		53 23.2	3 30.43	2 37.90	1.89	+ 0.21	+ 27 3 16.6	0 22.6	+ 1.0
b)		7	56 57.2	7 5.02	2 37.90	4.14	+ 3.08	+ 48 17 32.0	0.5	+ 5.5
		7.8	8 59 36.9	9 45.16	2 37.90	1.32	− 1.26	+ 19 37 10.3	31.7	− 1.1
	16 c Virginis		9 1 51.8	12 0.41	2 37.90	0.29	− 0.55	+ 4 30 17.4	55.4	− 1.4
	17 "		4 1.7	14 10.67	2 37.90	0.42	− 1.04	+ 6 29 43.8	51.5	− 1.5
		8	7 26.6	17 36.13	2 37.89	0.21	− 0.32	+ 3 13 43.9	57.9	− 1.2
	511 Mayer	7	9 45.5	19 55.41	2 37.89	0.36	− 0.83	+ 5 34 56.4	53.2	− 1.5
		7.8	15 3.7	25 14.48	2 37.89	0.35	− 0.76	+ 5 24 9.0	53.7	− 1.4
		7	16 34.7	26 45.73	2 37.89	0.56	− 1.54	+ 8 37 36.0	47.8	− 1.8
		6.7	18 40.4	28 51.77	2 37.89	0.65	− 3.54	+ 9 58 22.0	45.7	− 1.8
		7	22 25.8	32 37.79	2 37.89	0.65	− 3.60	+ 10 0 17.8	45.7	− 1.8
c)	33 Virginis		27 52.4	38 5.28	2 37.88	0.70	− 3.69	+ 10 44 8.6	45.0	− 1.9
	31 Comæ		33 34.0	43 47.82	2 37.88	2.03	+ 0.86	+ 28 41 53.8	20.8	+ 1.5
	45 δ Virginis		37 6.3	47 20.70	2 37.88	− 0.30	− 0.56	+ 4 33 47.3	0 55.1	− 1.4
	44 κ "		40 52.7	51 7.72	2 37.88	+ 0.17	+ 1.25	− 2 39 4.8	1 11.0	− 0.7
	48 "	6	45 6.7	12 55 22.41	2 37.88	0.16	+ 1.20	− 2 30 16.8	10.9	− 0.7
	51 θ "		9 51 5.0	13 1 21.69	2 37.87	0.28	+ 1.65	− 4 23 17.3	15.7	− 0.6
		7.8	10 4 51.7	15 10.65	2 37.86	0.64	+ 1.81	− 9 44 11.0	32.6	− 0.4
	67 a "		6 5.2	16 24.35	2 37.86	0.65	+ 1.79	− 10 1 51.5	33.7	− 0.4
	69 "							− 14 50 36.8	54.1	− 0.5
	76 h "		13 50.4	24 10.83	2 37.86	+ 0.59	+ 1.85	− 9 2 56.9	1 30.1	− 0.4
		6	19 51.7	30 13.12	2 37.86	− 1.02	− 1.54	+ 15 23 31.4	0 37.5	− 1.9
		7.8	22 37.9	32 59.87	2 37.86	1.37	− 1.21	+ 20 17 5.2	30.9	− 1.0
		6.7	25 49.4	36 11.79	2 37.86	− 1.63	− 0.70	+ 23 46 32.0	0 26.5	0.0
	88 "	6	29 12.8	39 35.75	2 37.85	+ 0.37	+ 1.81	− 5 45 30.6	1 19.7	− 0.5
		7.8	33 37.7	44 1.38	2 37.85	0.63	+ 1.81	− 9 36 35	32.2	− 0.4
		7	36 37.4	47 1.57	2 37.85	+ 0.57	+ 1.86	− 8 41 38.5	1 29.0	− 0.4
	10 ε Bootis		40 46.4	51 10.85	2 37.85	− 1.55	− 0.90	+ 22 44 14.9	0 27.9	− 0.3
		7	43 11.8	53 37.05	2 37.85	− 1.57	− 0.85	+ 23 0 38.8	0 27.5	− 0.2
	94 Virginis	7	47 1.2	13 57 27.08	2 37.85	+ 0.51	+ 1.88	− 7 51 27.2	1 26.2	− 0.5
		6.7	55 15.0	14 5 42.23	2 37.84	0.32	+ 1.73	− 4 56 25.0	17.3	− 0.5
	99 ι "		56 49.5	7 16.99	2 37.84	0.32	+ 1.74	− 4 58 7.6	17.4	− 0.5
	100 λ "		10 59 32.9	10 0.84	2 37.84	0.81	+ 1.62	− 12 22 1.0	42.9	− 0.3
	103 υ² "	7	11 2 58.6	13 27.10	2 37.84	+ 0.07	+ 0.73	− 1 0 4.6	1 7.0	− 0.7
		7.6	5 35.2	16 4.13	2 37.84	− 1.83	− 0.03	+ 26 18 11.3	0 23.6	+ 0.8
	22 f Bootis		8 34.0	19 3.42	2 37.84	1.36	− 1.22	+ 20 11 11.5	31.0	− 1.1
		7	19 3.1	29 34.24	2 37.83	2.00	+ 0.76	+ 28 24 39.8	21.1	+ 1.4
		7	24 10.7	34 42.68	2 37.83	1.50	− 1.01	+ 22 2 18.6	28.7	− 0.5
	35 o "	4	27 17.2	37 49.70	2 37.83	1.19	− 1.40	+ 17 52 5.9	34.1	− 1.5
		7.8	27 55.1	38 27.70	2 37.83	1.18	− 1.40	+ 17 41 53.0	34.4	− 1.6
d)		7.8	29 41.5	40 14.40	2 37.82	1.34	− 1.23	+ 19 56 24.0	31.3	− 1.1
		8	32 5.5	42 38.79	2 37.82	1.38	− 1.20	+ 20 23 47.5	30.8	− 1.0
		8	34 22.5	44 56.17	2 37.82	1.43	− 1.11	+ 21 10 1.8	29.8	− 0.8
		6.7	38 7.5	48 41.79	2 37.82	1.01	− 1.54	+ 15 18 39.0	37.6	− 1.9
		8.9	41 53.7	52 28.61	2 37.82	1.04	− 1.51	+ 15 41 3.4	37.2	− 1.8
		7.8	44 37.0	14 55 12.35	2 37.82	1.12	− 1.44	+ 16 53 19.0	35.4	− 1.7
		6	49 30.3	15 0 6.45	2 37.81	1.29	− 1.29	+ 19 15 54.6	32.2	− 1.3
		6.7	54 17.4	4 54.33	2 37.81	1.33	− 1.25	+ 19 46 38.7	31.6	− 1.1
		7	11 55 7.3	5 44.37	2 37.81	1.35	− 1.23	+ 20 4 3.2	31.2	− 1.1
		6	12 0 45.3	11 23.33	2 37.81	1.45	− 1.09	+ 21 21 1.4	29.6	− 0.8
		7.8	5 4.4	15 43.14	2 37.81	1.32	− 1.26	+ 19 40 29.9	31.7	− 1.1
		6	8 11.3	18 50.55	2 37.80	1.37	− 1.22	+ 20 13 42.8	31.0	− 1.1
e)		6.7	11 16.3	21 56.06	2 37.80	1.14	− 1.42	+ 17 7 34.2	35.1	− 1.7
f)	12 τ¹ Serpentis	6	14 12.5	24 52.70	2 37.80	1.12	− 1.45	+ 16 46 48.0	35.6	− 1.7
		8.9	23 41.2	34 22.97	2 37.80	0.55	− 1.50	+ 8 30 18.0	48.1	− 1.8
		7.8	26 18.3	37 0.50	2 37.79	0.78	− 4.32	+ 11 56 31.5	42.7	− 2.0
	28 β "	4.5	28 11.0	38 53.50	2 37.79	1.07	− 1.49	+ 16 5 22.8	36.6	− 1.8
	35 κ "	5	30 58.4	41 41.36	2 37.79	1.26	− 1.32	+ 18 47 54.4	32.9	− 1.3
		7.8	34 1.2	44 44.66	2 37.79	1.05	− 1.50	+ 15 52 56.0	36.8	− 1.8
		7	37 55.6	48 39.70	2 37.79	1.29	− 1.29	+ 19 14 32.0	32.3	− 1.3
	13 ε Cor. Bor.		40 33.7	51 18.26	2 37.79	1.92	+ 0.38	+ 27 29 18.0	22.2	+ 1.2
	14 ι "		12 44 41.4	15 55 26.62	− 2 37.79	− 2.17	+ 1.25	+ 30 26 21.2	− 0 18.9	+ 2.0

a ζ assumed as 45° 45′; not 45° 44′.
b ζ assumed as 0° 33′; not 0° 38′.
c ζ assumed as 38° 6′; not 38° 11′.
d ζ assumed as 28° 54′ 41″; not 28° 54′ 31″.
e Micr. corr. assumed as + 5; not — 5.
f Micr. corr. assumed as — 6; not + 6.

1783 MAY 12 — Zero corr. = + 1′ 47″.2.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
Virginis		9 29 13.5	12 51 16.28	− 2 35.97	− 0.83	− 2.68	+ 11 49 17.0	− 0 42.8	− 2.0
47 ε "		32 1.5	54 4.74	2 35.97	− 0.85	− 2.43	+ 12 6 30.5	0 42.4	− 2.0
	6	37 47.3	12 59 51.49	2 35.97	+ 0.54	+ 1.88	− 7 49 41.0	1 25.8	− 0.5
a)	7.8	44 7.0	13 6 12.23	2 35.97	0.71	+ 1.79	− 10 12 20.3	34.1	− 0.4
	7	46 29.4	8 35.02	2 35.97	0.72	+ 1.77	− 10 20 31.8	34.7	− 0.4
67 α "		54 16.6	16 23.50	2 35.96	0.69	+ 1.79	− 10 1 55.0	33.4	− 0.1
69 "		9 56 23.4	18 30.64	2 35.96	1.04	+ 1.60	− 14 50 44.4	53.8	− 0.5
76 "		10 2 2.2	24 10.37	2 35.96	+ 0.63	+ 1.85	− 9 2 59.6	1 29.9	− 0.4
	6	8 3.8	30 12.96	2 35.96	− 1.09	− 1.53	+ 15 23		
5 ν Bootis		19 31.6	41 42.65	2 35.96	1.19	− 1.44	+ 16 51 27.3	0 35.4	− 1.7
	6	22 37.1	44 48.66	2 35.96	1.26	− 1.40	+ 17 47 6.8	34.1	− 1.5
	7.8	24 44.8	46 56.71	2 35.95	1.15	− 1.48	+ 16 19 46.2	36.1	− 1.8
	7	26 40.5	48 52.73	2 35.95	1.20	− 1.44	+ 16 55 57.6	35.2	− 1.7
	6.7	31 24.2	53 37.21	2 35.95	1.67	− 0.85	+ 23 0 36.0	27.5	− 0.2
	7.8	34 5.2	56 18.65	2 35.95	2.14	+ 0.79	+ 28 31 58.7	21.0	+ 1.5
	7.8	37 45.7	13 59 59.75	2 35.95	2.83	+ 1.31	+ 35 47 26.2	13.2	+ 3.3
	7	41 32.7	14 3 47.15	2 35.95	3.51	+ 1.41	+ 41 46 40.2	7.0	+ 4.5
	7	43 19.3	5 34.25	2 35.95	3.71	+ 1.56	+ 43 20 8.2	5.5	+ 4.7
	8	45 59.8	8 15.19	2 35.95	4.13	+ 2.54	+ 46 24 50.1	2.4	+ 5.3
	6.7	48 6.1	10 21.83	2 35.95	4.14	+ 2.60	+ 46 32 36.9	2.3	+ 5.4
b)	7	50 8.1	12 24.16	2 35.95	4.47	+ 3.18	+ 48 58 49.0	0.2	+ 5.6
	7.8	53 43.3	15 59.95	2 35.94	2.60	+ 1.40	+ 33 28 36.0	15.6	+ 2.8
	6	54 45.8	17 2.62	2 35.94	2.13	+ 0.73	+ 28 22 41.0	21.1	+ 1.4
	6	57 1.7	19 18.89	2 35.94	3.22	+ 1.29	+ 39 21 1.5	9.5	+ 3.9
	6.7	10 59 15.8	21 33.36	2 35.94	3.54	+ 1.42	+ 41 58 28.6	6.8	+ 4.5
	6.7	11 1 26.1	23 44.03	2 35.94	3.63	+ 1.49	+ 42 45 2.0	6.1	+ 4.7
	7	3 24.8	25 43.05	2 35.94	3.84	+ 1.75	+ 44 19 3.6	4.5	+ 4.9
	7	6 41.2	29 0.00	2 35.94	1.76	− 0.60	+ 24 10 35.7	26.0	0.0
	6	8 31.5	30 50.60	2 35.94	1.37	− 1.30	+ 19 13 32.8	32.2	− 1.3
	6	10 52.8	33 12.28	2 35.94	1.66	− 0.87	+ 22 53 17.2	27 7	− 0.2
	7.6	12 48.1	35 7.89	2 35.94	1.10	− 1.51	+ 15 37 10.0	37.2	− 1.8
35 υ Comæ		15 28.6	37 48.83	2 35.94	1.27	− 1.40	+ 17 52 5.0	34.0	− 1.5
	7	16 7.1	38 27.44	2 35.94	1.25	− 1.40	+ 17 41 47.1	34.3	− 1.5
	6	19 6.2	41 27.03	2 35.94	1.85	− 0.31	+ 25 14 57.4	24.8	+ 0.4
	8	21 24.2	43 45.41	2 35.94	1.73	− 0.70	+ 23 47 27.5	26.5	0.0
	7.6	23 52.8	46 14.42	2 35.93	1.43	− 1.23	+ 20 0 40.1	31.3	− 1.1
c)	9	26 46.1	49 7.99	2 35.93	1.27	− 1.39	+ 17 58 5.0	34.0	− 1.5
	6.7	27 36.4	49 58.63	2 35.93	1.62	− 0.95	+ 22 24 54.3	28.2	− 0.4
	7.8	29 36.4	51 58.96	2 35.93	1.90	− 0.13	+ 25 53 50.0	24.0	+ 0.7
	7	31 27.6	53 50.46	2 35.93	1.66	− 0.87	+ 22 53 21.5	27.7	− 0.2
43 ψ Bootis		35 26.1	14 57 49.61	2 35.93	2.07	+ 0.47	+ 27 46 27.4	21.9	+ 1.3
45 e "		38 3.5	15 0 27.44	2 35.93	1.89	− 0.19	+ 25 41 45.0	24.3	+ 0.6
	6	39 25.3	1 49.46	2 35.93	1.90	− 0.13	+ 25 55 14.8	24.0	+ 0.7
	6	42 29.5	4 54.16	2 35.93	1.41	− 1.25	+ 19 46 40.7	31.6	− 1.1
48 χ "		45 39.4	8 4.58	2 35.93	2.27	+ 1.18	+ 29 57 1.8	19.5	+ 1.9
49 δ Bootis		47 0.2	9 25.60	2 35.93	2.66	+ 1.38	+ 34 6 13.4	14.9	+ 2.9
	8	49 28.0	11 53.81	2 35.93	2.68	+ 1.37	+ 34 21 58.7	14.7	+ 2.9
	7	53 27.8	15 54.27	2 35.92	3.96	+ 2.06	+ 45 11 44.6	3.6	+ 5.1
	7	11 57 0.8	19 27.85	2 35.92	4.07	+ 2.39	+ 46 0 42.1	2.8	+ 5.3
	8	12 0 41.2	23 8.85	2 35.92	3.24	+ 1.29	+ 39 27 2.1	9.4	+ 4.0
5 α Cor. Bor.		5 42.0	28 10.47	2 35.92	2.04	+ 0.36	+ 27 25 39.0	22.3	+ 1.1
	7	9 56.0	32 25.17	2 35.92	1.20	− 1.43	+ 17 0 11.0	35.3	− 1.7
19 τ³ Serpentis		11 13.6	33 42.98	2 35.92	1.18	− 1.45	+ 16 42 43.6	35.7	− 1.7
9 π Cor. Bor.		15 36.8	38 6.91	2 35.92	2.57	+ 1.40	+ 33 10 49.4	16.0	+ 2.7
	6	18 18.5	40 49.05	2 35.92	1.01	− 1.62	+ 14 27 3.5	39.0	− 2.0
10 δ "		20 39.4	43 10.34	2 35.92	1.98	+ 0.09	+ 26 42 55.1	23.1	+ 1.0
11 κ "		23 13.1	45 44.46	2 35.91	2.88	+ 1.30	+ 36 18 31.4	12.7	+ 3.3
	7.8	30 56.8	53 29.43	2 35.91	0.97	− 1.67	+ 13 52 23.0	39.9	− 2.0
	7.8	31 55.3	54 28.09	2 35.91	0.99	− 1.62	+ 14 3 58.0	39.5	− 2.0
6 υ Herculis		36 11.0	15 58 44.49	2 35.91	4.16	+ 2.61	+ 46 36 40.8	2.2	+ 5.4
48 Serpentis		12 41 47.0	16 4 21.41	− 2 35.91	− 1.22	− 1.42	+ 17 12 50.5	− 0 35.1	− 1.7

a T. II assumed as 7s.; not 2s. b Measurement of ζ assumed as negative. c ζ assumed as 30° 53′ 0″; not 30° 53′ 10″.

1783 MAY 13 — Zero corr. = + 1′ 46″. S.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		8 7 6.5	11 32 52.34	— 2 36.54	— 3.61	+ 1.46	+ 42 24 48.4	— 0 6.3	+ 4.5
94 β Leonis . .		14 52.7	40 39.82	2 36.53	1.12	— 1.50	+ 15 45 44.6	36.7	— 1.8
	6	21 4.7	46 52.84	2 36.52	1.99	+ 0.09	+ 26 42 19.2	22.9	+ 1.0
	6	23 48.3	49 36.89	2 36.52	2.62	+ 1.40	+ 33 27 31.2	15.5	+ 2.8
	6	27 22.2	53 11.38	2 36.52	3.01	+ 1.27	+ 37 13 42.2	11.6	+ 3.5
	7	29 16.2	55 5.69	2 36.52	2.37	+ 1.29	+ 30 51 48.0	18.3	+ 2.2
	8	33 14.4	11 59 4.54	2 36.52	1.78	— 0.59	+ 24 13 36.0	25.8	0.0
	6	36 32.7	12 2 23.38	2 36.52	2.15	+ 0.78	+ 28 27 52.0	20.9	+ 1.4
	7.8	41 12.7	7 4.15	2 36.52	4.45	+ 3.10	+ 48 17 33.0	0.5	+ 5.5
8 Comæ . .		45 9.2	11 1.30	2 36.51	1.78	— 0.59	+ 24 13 0.0	25.8	0.0
12 " . .		48 22.2	14 14.83	2 36.51	2.02	+ 0.21	+ 27 1 33.4	22.5	+ 1.0
13 f " . .		50 11.3	16 4.23	2 36.51	— 2.04	+ 0.30	+ 27 16 39.7	0 22.3	+ 1.0
	7	53 30.7	19 24.17	2 36.51	+ 0.93	+ 1.58	— 13 15 9.4	1 45.8	— 0.3
512 Mayer . .	7	55 36.5	21 30.31	2 36.51	0.86	+ 1.63	— 12 11 43.2	41.3	— 0.3
	6	8 59 1.5	24 55.87	2 36.51	0.81	+ 1.67	— 11 38 29.8	39.0	— 0.3
	7	9 1 20.3	27 15.05	2 36.51	0.76	+ 1.72	— 10 52 52.8	36.1	— 0.3
26 χ Virginis .	5	4 44.4	30 39.71	2 36.51	0.47	+ 1.87	— 6 48 37.2	22.1	— 0.5
28 " . .	8	7 25.5	33 21.25	2 36.51	0.44	+ 1.85	— 6 19 4.0	20.6	— 0.5
	7.8	9 45.2	35 41.33	2 36.51	+ 0.11	+ 0.96	— 1 39 57.2	1 8.1	— 0.7
	7	16 3.6	42 0.77	2 36.51	— 0.52	— 1.24	+ 7 23 39.6	0 49.6	— 1.6
a)	6.7	19 7.0	45 4.67	2 36.50	+ 0.21	+ 1.34	— 3 3 13.3	1 11.7	— 0.7
	7	21 43.2	47 41.30	2 36.50	0.26	+ 1.50	— 3 41 55.0	13.3	— 0.6
	7	9 23 19.3	12 49 17.66	2 36.50	0.97	+ 1.57	— 13 48 44.2	48.5	— 0.4
2 Libræ . .	6.7	10 49 26.7	14 15 39.21	2 36.48	0.75	+ 1.74	— 10 41 2.1	35.4	— 0.3
574 Mayer . .	7	53 21.2	19 34.35	2 36.48	+ 0.63	+ 1.85	— 9 1 55.0	1 29.6	— 0.4
26 Boötis . .		10 59 8.2	25 22.30	2 36.48	— 1.69	— 0.82	+ 23 11 52.2	0 27.2	— 0.2
	6.7	11 2 45.0	28 59.69	2 36.48	1.77	— 0.60	+ 24 10 36.0	25.9	0.0
	6	4 35.1	30 50.09	2 36.48	1.38	— 1.30	+ 19 13 33.6	32.1	— 1.3
	6	6 56.9	33 12.28	2 36.48	1.67	— 0.88	+ 22 53 16.6	27.6	— 0.2
34 " . .		10 18.2	36 34.13	2 36.48	1.97	+ 0.36	+ 27 25 53.4	21.9	+ 1.1
36 ε " . .		11 54.8	38 11.00	2 36.48	2.10	+ 0.55	+ 27 58 14.3	21.6	+ 1.3
	7	15 56.8	42 13.66	2 36.47	1.47	— 1.20	+ 20 23 44.0	30.6	— 1.0
b)	7.8	18 38.1	44 55.40	2 36.47	1.53	— 1.11	+ 21 9 57.2	29.7	— 0.8
37 ξ " . .	7	19 56.5	46 14.02	2 36.46	1.44	— 1.23	+ 20 0 39.1	31.1	— 1.1
	6	22 22.9	48 40.82	2 36.46	1.08	— 1.54	+ 15 18 36.8	37.5	— 1.9
	7	24 24.7	50 42.95	2 36.46	1.04	— 1.58	+ 14 53 36.8	38.1	— 1.9
c)	8	26 9.1	52 27.64	2 36.46	1.11	— 1.51	+ 15 40 57.4	37.0	— 1.8
41 ω " . .		28 58.1	55 17.10	2 36.46	1.92	— 0.15	+ 25 50 56.8	24.0	+ 0.7
d)	8.9	30 50.1	57 9.41	2 36.46	2.01	+ 0.52	+ 27 54 45.0	22.0	+ 1.0
43 ψ " . .		81 30.3	14 57 49.72	2 36.46	2.09	+ 0.47	+ 27 46 30.2	21.8	+ 1.3
	7	34 26.4	15 0 46.30	2 36.46	3.02	+ 1.27	+ 37 16 4.4	11.6	+ 3.5
	8	38 11.7	4 32.22	2 36.46	2.66	+ 1.39	+ 33 52 45.7	15.1	+ 2.9
	6.7	41 32.7	7 53.77	2 36.46	2.53	+ 1.39	+ 32 34 38.0	16.5	+ 2.6
49 δ " . .		43 4.9	9 26.22	2 36.46	2.70	+ 1.38	+ 34 6 10.4	14.9	+ 2.9
	6.7	45 31.2	11 52.92	2 36.46	2.71	+ 1.37	+ 34 21 58.4	14.6	+ 3.0
	6.7	47 3.3	13 25.27	2 36.45	2.60	+ 1.40	+ 33 16 50.0	15.7	+ 2.7
2 η Cor. Bor. .	5.6	50 32.1	16 54.64	2 36.45	2.38	+ 1.31	+ 31 3 7.8	18.2	+ 2.2
51 μ Boötis . .		52 36.2	18 59.08	2 36.45	3.11	+ 1.27	+ 38 6 55.8	10.7	+ 3.7
	9	55 15.2	21 38.52	2 36.45	3.92	+ 1.87	+ 44 44 27.5	4.1	+ 5.1
	7	11 58 3.8	24 27.58	2 36.45	4.39	+ 3.00	+ 47 55 15.7	0.9	+ 5.5
52 ν^1 Boötis . .		12 0 18.2	26 42.35	2 36.45	3.51	+ 1.40	+ 41 36 40.0	7.2	+ 4.4
6 μ Cor. Bor. .	6	3 34.2	29 58.89	2 36.45	3.29	+ 1.30	+ 39 42 27.3	9.1	+ 4.0
	6	6 41.2	33 6.40	2 36.45	2.81	+ 1.32	+ 35 21 40.0	13.6	+ 3.1
8 γ " . .		9 53.2	36 18.93	2 36.45	2.01	+ 0.17	+ 26 57 53.4	22.7	+ 1.0
e) 28 β Serpentis .		12 26.8	38 52.95	2 36.45	1.14	— 1.49	+ 16 5 17.3	36.3	— 1.8
29 " . .		12 40.9	39 7.09	2 36.45	1.14	— 1.48	+ 16 11 15.0	36.2	— 1.8
38 ρ Ophiuchi .		17 58.9	44 25.96	2 36.44	1.56	— 1.06	+ 21 36 54.8	29.1	— 0.6
	7	19 21.8	45 49.09	2 36.44	1.29	— 1.38	+ 18 2 14.1	33.7	— 1.5
41 γ Serpentis .		22 40.5	49 8.33	2 36.44	1.16	— 1.47	+ 16 21 28.5	36.1	— 1.8
13 ε Cor. Bor. .	5	24 48.5	51 16.68	2 36.44	2.06	+ 0.38	+ 27 29 18.0	22.1	+ 1.1
	6.7	27 9.1	53 37.67	2 36.44	3.01	+ 1.27	+ 37 14 16.2	11.6	+ 3.5
	7	29 26.1	55 55.02	2 36.44	3.30	+ 1.30	+ 39 45 43.2	9.0	+ 4.1
	8	12 30 40.7	15 57 9.82	— 2 36.44	— 3.39	+ 1.34	+ 40 35 59.7	— 0 8.2	+ 4.2

a ζ assumed as 51° 54′; not 51° 14′.
b ζ assumed as 27° 41′ 8″.5; not 27° 41′ 38″.5.
c Micr. corr. assumed as + 5; not — 5.
d ζ assumed as 20°; not 21°.
e ζ assumed as 32° 45′ 48″.5; not 32° 45′ 18″.5.

1783 MAY 13—Continued Zero corr. = + 1′ 46″.8.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
6 ν Herculis .	7	12 32 15.0	15 58 44.38	— 2 36.44	— 4.20	+ 2.61	+ 46 36 42.9	— 0 2.2	+ 5.4
48 Serpentis .	6	37 51.3	16 4 21.60	2 36.44	1.23	— 1.42	+ 17 12 52.0	34.8	— 1.7
	6.7	39 57.4	6 28.06	2 36.44	2.03	+ 0.28	+ 27 12 36.0	22.4	+ 1.0
17 σ Cor. Bor. .		42 42.7	9 13.81	2 36.44	2.71	+ 1.37	+ 34 23 15.4	14.6	+ 3.0
19 Herculis .	6	45 33.5	12 5.08	2 36.43	1.97	0.00	+ 26 24 29.7	23.4	+ 0.8
	6.7	48 38.7	15 10.79	2 36.43	3.35	+ 1.32	+ 40 12 13.5	8.6	+ 4.1
	7	52 58.0	19 30.80	2 36.43	1.17	— 1.47	+ 16 27 0.6	36.0	— 1.8
	7.8	55 28.7	22 1.91	2 36.43	1.33	— 1.32	+ 18 51 22.6	32.7	— 1.3
	6	12 57 16.4	23 49.91	2 36.43	1.51	— 1.15	+ 20 56 21.8	30.0	— 0.8
32 Comæ . .	6.7	13 1 8.5	27 42.65	2 36.43	2.38	+ 1.30	+ 30 56 7.0	16.3	+ 2.2
35 σ Herculis .		3 13.6	29 48.09	2 36.43	3.67	+ 1.50	+ 42 51 32.6	6.0	+ 4.7
	6	5 58.5	32 33.44	2 36.43	4.25	+ 2.75	+ 47 1 27.2	1.8	+ 5.4
	8	19 50.7	46 27.92	2 36.42	4.25	+ 2.74	+ 46 59 19.0	1.8	+ 5.4
	7	22 44.7	49 22.40	2 36.42	3.72	+ 1.54	+ 43 10 19.8	5.6	+ 4.7
	8	26 4.7	52 42.95	2 36.42	4.35	+ 2.94	+ 47 40 46.6	1.2	+ 5.5
59 d " . .	6	29 37.4	56 16.23	2 36.42	2.66	+ 1.39	+ 33 51 42.6	15.2	+ 2.9
	8	32 10.7	16 58 49.95	2 36.42	2.14	+ 0.73	+ 28 22 15.9	21.2	+ 1.4
	7	34 30.5	17 1 10.13	2 36.42	3.84	+ 1.70	+ 44 4 51.0	4.7	+ 4.9
	[illegible]	37 35.5	4 15.64	2 36.42	4.50	+ 3.15	+ 48 38 52.7	0.2	+ 5.6
	7.8	41 20.6	8 1.36	2 36.41	4.05	+ 2.21	+ 45 33 30.2	3.2	+ 5.2
68 u " . .	6	45 17.3	11 58.71	2 36.41	2.60	+ 1.40	+ 33 18 46.8	15.7	+ 2.7
72 w " . .	6.7	48 31.3	15 13.24	2 36.41	2.54	+ 1.40	+ 32 43 35.3	16.4	+ 2.7
	7	50 35.8	17 18.07	2 36.41	3.34	+ 1.32	+ 40 9 50.4	8.6	+ 4.1
	7	13 58 13.2	24 56.72	2 36.41	1.21	— 1.43	+ 16 58 26.2	35.2	— 1.7
55 α Ophiuchi .		14 0 49.7	27 33.65	2 36.41	0.89	— 1.88	+ 12 42 33.8	41.4	— 2.0
a) 79 Herculis .	6	4 31.2	31 15.76	2 36.41	1.80	— 0.54	+ 24 25 24.4	25.8	+ 0.1
	7	8 6.5	34 51.65	2 36.41	1.81	— 0.49	+ 24 36 15.7	25.5	+ 0.2
83 " . .	6.7	9 30.4	36 15.78	2 36.41	1.82	— 0.48	+ 24 39 29.4	25.5	+ 0.2
84 " . .		10 22.2	37 7.72	2 36.41	1.79	— 0.54	+ 24 24 24.5	25.8	+ 0.1
	6	13 29.1	40 15.13	2 36.41	1.26	— 1.40	+ 17 45 55.8	34.1	— 1.5
	6.7	15 17.1	42 3.43	2 36.40	1.38	— 1.29	+ 19 18 44.8	32.1	— 1.3
	7.8	17 34.7	44 21.41	2 36.40	1.63	— 0.96	+ 22 21 46.8	28.2	— 0.4
	8.9	21 25.8	48 13.14	2 36.40	2.33	+ 1.24	+ 30 23 42.4	18.9	+ 2.0
b) 91 θ " . .		24 41.7	51 29.58	2 36.40	3.02	+ 1.27	+ 37 15 24.6	11.6	+ 3.5
	8	27 17.0	54 5.30	2 36.40	3.74	+ 1.57	+ 43 24 35.0	5.4	+ 4.8
	8	28 55.3	17 55 43.87	2 36.40	3.71	+ 1.54	+ 43 12 54.0	5.6	+ 4.7
	8	33 31.4	18 0 20.73	2 36.40	3.33	+ 1.31	+ 40 2 35.5	8.8	+ 4.1
c)	7.8	35 52.1	2 41.81	2 36.40	1.83	— 0.40	+ 24 54 53.2	25.2	+ 0.4
104 A " . .		39 33.8	6 24.12	2 36.40	2.41	+ 1.34	+ 31 19 57.1	17.9	+ 2.2
d)	7	41 40.6	8 31.27	2 36.40	3.17	+ 1.28	+ 38 41 23.5	10.2	+ 3.8
	7	44 43.7	11 34.87	2 36.40	3.57	+ 1.43	+ 42 3 35.2	6.8	+ 4.5
	8.9	48 2.5	14 54.21	2 36.39	4.15	+ 2.49	+ 46 17 30.6	2.6	+ 5.3
	6	51 47.7	18 40.03	2 36.39	4.55	+ 3.25	+ 48 58 55.3	0.2	+ 5.6
	9	55 25.8	22 18.73	2 36.39	4.42	+ 3.06	+ 48 8 28.7	0.7	+ 5.5
	7	14 58 21.2	25 14.61	2 36.39	1.57	— 1.05	+ 21 44 1.9	29.0	— 0.6
	7	15 0 47.0	27 40.81	2 36.39	1.46	— 1.20	+ 20 17 6.2	30.8	— 1.2
	6.7	3 13.2	30 7.41	2 36.39	1.58	— 1.02	+ 21 54 49.0	28.7	— 0.5
	7	12 36.6	39 32.35	2 36.39	2.57	+ 1.40	+ 32 56 36.0	16.1	+ 2.7
	6.7	15 29.3	42 25.52	2 36.38	2.43	+ 1.36	+ 31 29 46.0	17.7	+ 2.4
e) 9 ν² Lyræ . .		17 30.3	44 26.85	2 36.38	2.50	+ 1.39	+ 32 16 48.8	16.9	+ 2.5
11 δ¹ " . .	6	21 51.9	48 49.17	2 36.38	2.94	+ 1.29	+ 36 40 41.0	12.2	+ 3.4
12 δ² " . .		22 36.8	49 34.19	2 36.38	2.94	+ 1.29	+ 36 36 5.4	12.3	+ 3.4
13 ε Aquilæ .		25 29.8	52 27.66	2 36.38	— 1.04	— 1.59	+ 14 45 45.6	0 38.3	— 1.9
Saturn . .		29 8.2	56 6.66	2 36.38	+ 1.62	+ 1.67	— 22 15 4.4	2 43.8	— 1.2
41 π Sagittarii .		32 27.7	18 59 26.71	2 36.38	1.54	+ 1.51	— 21 20 17.2	2 35.9	— 1.0
20 Aquilæ .		36 30.5	19 3 30.17	2 36.38	+ 0.58	+ 1.88	— 8 17 38.6	1 27.6	— 0.5
	6	39 50.1	6 50.32	2 36.38	— 0.79	— 3.00	+ 11 19 59.6	0 43.6	— 1.9
25 ω¹ " . .	5	43 19.2	10 19.99	2 36.38	0.78	— 2.96	+ 11 11 44.2	43.8	— 1.9
f)	6	49 40.4	16 42.23	2 36.37	1.09	— 1.52	+ 15 34 57.6	37.2	— 1.8
	6	52 23.3	19 25.57	2 36.37	1.41	— 1.26	+ 19 39 15.4	— 0 31.8	— 1.1
g) 4 Vulpeculæ	6	15 51 37.2	19 18 39.33	— 2 36.37	— 1.39	— 1.28	+ 19 22		

a Div. assumed as 26 0 14; not 26 0 13.
b Div. assumed as 12 5 14; not 12 5 9.
c ζ assumed as 23° 56′ 11″.5; not 23° 56′ 41″.5.
d Div. assumed as 10 13 7; not 10 7 13.
e Div. assumed as 17 10 13; not 17 10 11.
f Div. assumed as 35 7; not 35 5.
g Div. assumed as 51; not 52.

1783 MAY 13—Continued Zero corr. = + 1′ 46″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
6 Vulpeculæ		15 55 18.3	19 22 21.06	− 2 36.37	− 1.78	− 0.59	+ 24 12 37.4	− 0 26.0	0.0
8 "	7	15 55 31.1	22 33.90	2 36.37	1.79	− 0.56	+ 24 18 26.0	26.0	+ 0.1
50 γ Aquilæ		16 11 32.6	38 38.03	2 36.37	0.70	− 2.34	+ 10 4 34.0	45.6	− 1.8
18 δ Cygni		13 45.7	40 51.49	2 36.36	3.90	+ 1.81	+ 44 34 21.3	4.3	+ 5.0
53 α Aquilæ		15 45.5	42 51.62	2 36.36	0.58	− 1.44	+ 8 17 18.8	48.5	− 1.7
60 β "		20 11.8	19 47 18.65	2 36.36	− 0.41	− 0.90	+ 5 51 34.0	0 52.9	− 1.5
Jupiter		16 54 14.7	20 21 27.14	2 36.35	+ 1.44	+ 1.41	− 19 58 28.8	2 25.3	− 0.8
α Cygni		17 9 26.8	20 36 41.74	− 2 36.35	− 3.89	+ 1.79	+ 44 28 38.4	− 0 4.4	+ 5.0

1783 MAY 15. Zero corr. = + 1′ 45″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Sirius	1	3 5 18.8	6 38 8.18	− 2 35.53	+ 1.17	+ 1.67	− 16 25 46.6	− 2 0.9	− 0.5
		9 14 48.2	12 48 38.28	2 35.35	0.54	+ 1.88	− 7 44 30.0	1 25.0	− 0.5
49 g Virginis		25 16.2	12 59 8.00	2 35.34	0.67	+ 1.81	− 9 35 6.3	31.3	− 0.4
	8	28 43.5	13 2 35.87	2 35.34	0.65	+ 1.83	− 9 21 52.8	30.5	− 0.4
a) 56 "	7.8	32 6.2	5 59.13	2 35.34	0.65	+ 1.84	− 9 13 27.2	29.9	− 0.4
	7	34 48.2	8 41.57	2 35.34	0.65	+ 1.83	− 9 24 25.8	30.5	− 0.4
62 "		37 38.6	11 32.43	2 35.34	0.71	+ 1.79	− 10 10 0.6	33.2	− 0.4
67 α "		42 27.5	16 22.12	2 35.33	+ 0.70	+ 1.79	− 10 1 54.5	1 32.8	− 0.4
78 "	6	51 51.0	25 47.17	2 35.33	− 0.33	− 0.60	+ 4 45 41.0	0 54.3	− 1.4
	6.7	57 18.6	31 15.67	2 35.33	1.39	− 1.28	+ 19 21 4.0	31.8	− 1.3
b) 2 Boötis	6	9 59 28.9	33 26.33	2 35.33	1.72	− 0.75	+ 23 34 33.4	26.6	− 0.1
	6.7	10 2 11.7	36 9.57	2 35.32	− 1.74	− 0.71	+ 23 46 30.7	0 26.4	0.0
		4 43.2	38 41.48	2 35.32	+ 0.39	+ 1.80	− 5 37 31.3	1 18.6	− 0.5
	6	8 11.7	42 10.55	2 35.32	− 0.46	− 1.06	+ 6 33 43.4	0 51.2	− 1.6
92 Virginis	7	14 3.5	48 3.31	2 35.32	0.15	− 0.12	+ 2 6 11.2	59.6	− 1.0
c)	7.8	16 20.5	13 50 20.69	2 35.32	− 1.25	− 1.41	+ 17 26 43.2	0 34.4	− 1.6
d) 1211 Lacaille	4	10 40 58.2	14 15 2.44	2 35.31	+ 1.75	+ 2.14	− 23 47 41.0	2 57.9	− 1.8
e)	7	11 15 47.4	49 57.36	2 35.29	− 1.64	− 0.95	+ 22 24 56.9	0 28.1	− 0.4
41 ω Boötis		21 5.5	55 16.33	2 35.28	1.93	− 0.15	+ 25 50 55.6	23.9	+ 0.7
43 ψ "		23 37.0	14 57 48.24	2 35.28	2.10	+ 0.48	+ 27 46 34.7	21.7	+ 1.3
	7.8	28 37.7	15 2 49.76	2 35.28	2.69	+ 1.38	+ 34 4 15.0	14.9	+ 2.9
	7.8	30 18.3	4 30.64	2 35.28	2.67	+ 1.39	+ 33 52 49.8	15.1	+ 2.9
	6.7	33 39.9	7 52.79	2 35.28	2.54	+ 1.39	+ 32 34 41.6	16.4	+ 2.6
49 δ "		35 11.7	9 24.84	2 35.27	2.70	+ 1.38	+ 34 6 13.4	14.9	+ 2.9
	7	37 38.5	11 52.04	2 35.27	2.72	+ 1.37	+ 34 21 59.4	14.5	+ 2.9
1 o Cor. Bor.		39 35.8	13 49.66	2 35.27	2.33	+ 1.24	+ 30 23 4.0	18.8	+ 2.0
2 η " "		42 39.4	16 53.76	2 35.27	2.40	+ 1.31	+ 31 3 6.8	18.1	+ 2.2
51 μ Boötis		44 43.2	18 57.90	2 35.27	3.12	+ 1.27	+ 38 6 55.8	10.7	+ 3.7
f)	8.9	47 22.9	21 38.03	2 35.27	3.94	+ 1.87	+ 44 44 25.2	4.1	+ 5.1
	7	50 10.7	24 26.29	2 35.27	4.41	+ 3.00	+ 47 55 16.7	0.9	+ 5.5
52 ν^1 "	6	52 25.2	26 41.16	2 35.27	3.53	+ 1.40	+ 41 36 38.0	7.2	+ 4.4
6 μ Cor. Bor.		55 41.1	29 57.60	2 35.27	3.30	+ 1.30	+ 39 42 27.0	9.1	+ 4.1
	7	11 58 48.7	33 5.71	2 35.26	2.83	+ 1.32	+ 35 21 39.6	13.6	+ 3.1
8 γ " "		12 2 0.3	36 17.84	2 35.26	2.02	+ 0.20	+ 26 57 54.2	22.6	+ 1.0
28 β Serpentis		4 33.3	38 51.26	2 35.26	1.14	− 1.49	+ 16 5 19.3	36.3	− 1.8
29 "		4 48.0	39 6.00	2 35.26	1.15	− 1.48	+ 16 11 25.0	36.1	− 1.8
35 κ "		7 20.7	41 39.12	2 35.26	1.35	− 1.32	+ 18 47 54.2	32.7	− 1.3
38 ρ "		10 5.8	44 24.67	2 35.26	1.57	− 1.06	+ 21 36 58.0	29.1	− 0.6
41 γ "		14 47.2	49 6.84	2 35.26	1.17	− 1.47	+ 16 21 25.5	36.1	− 1.8
13 ε Cor. Bor.		16 55.5	51 15.49	2 35.26	2.07	+ 0.38	+ 27 29 16.5	22.1	+ 1.1
	6	19 16.7	53 37.09	2 35.25	3.02	+ 1.27	+ 37 14 14.9	11.6	+ 3.5
	9	21 32.6	55 53.36	2 35.25	3.31	+ 1.30	+ 39 45 46.0	9.0	+ 4.1
	9	22 47.7	57 8.66	2 35.25	3.41	+ 1.34	+ 40 35 58.0	8.2	+ 4.2
6 υ Herculis	6.7	24 21.0	15 58 42.21	2 35.25	4.21	+ 2.61	+ 46 36 41.0	2.2	+ 5.4
g) 7 κ "	6.7	26 36.3	16 0 57.88	2 35.25	1.27	− 1.40	+ 17 36 44.0	34.0	− 1.6
8 q "	7	27 18.8	1 40.50	2 35.25	1.27	− 1.40	+ 17 46 8.0	34.0	− 1.5
48 Serpentis	7	29 58.1	4 20.23	2 35.25	1.23	− 1.42	+ 17 12 54.2	34.8	− 1.7
	7	32 4.8	6 27.28	2 35.25	2.04	+ 0.28	+ 27 12 37.0	22.4	+ 1.0
h) 17 σ Cor. Bor.	7.6	34 49.6	9 12.53	2 35.25	2.74	+ 1.37	+ 34 23 15.9	14.6	+ 2.9
19 Herculis	6	12 37 40.8	16 12 4.20	− 2 35.24	− 1.98	0.00	+ 26 24 29.2	− 0 23.4	+ 0.8

a Div. assumed as 61 15 2; not 61 15 3.
b ζ assumed as 25° 16′ 32″; not 25° 16′ 52″.
c T. II assumed as 20s.; not 30s.
d Div. assumed as 77 7 13; not 77 7 7.
e ζ assumed as 26° 26′ 8″; not 26° 26′ 28″.
f Div. assumed as 4 6 3; not 4 6 5.
g ζ assumed as 31° 14′; not 31° 4′.
h Div. assumed as 15 6 14; not 15 6 13: and ζ assumed as 14° 27′; not 14° 24′.

1783 MAY 15—Continued Zero corr. = + 1′ 45″. 5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	″	″
	6	12 40 45.5	16 15 9.41	− 2 35.24	− 3.36	+ 1.32	+ 40 12 14.0	− 0 8.6	+ 4.1
20 ν¹ Cor. Bor.		42 27.4	16 51.62	2 35.24	2.72	+ 1.38	+ 34 17 23.0	14.7	+ 2.9
	7.8	45 5.2	19 29.85	2 35.24	1.17	− 1.47	+ 16 27 6.8	35.9	− 1.8
	7	47 35.7	22 0.76	2 35.24	1.35	− 1.32	+ 18 51 21.7	32.7	− 1.3
32 Herculis	8	53 15.5	27 41.49	2 35.24	2.39	+ 1.30	+ 30 56 5.0	18.3	+ 2.2
35 σ "		55 21.0	29 47.33	2 35.24	3.69	+ 1.50	+ 42 51 33.8	5.9	+ 4.7
	6	12 58 5.8	32 32.58	2 35.24	4.28	+ 2.75	+ 47 1 30.7	1.8	+ 5.4
40 ζ "		13 1 18.6	35 45.91	2 35.23	2.48	+ 1.38	+ 31 58 31.5	17.1	+ 2.5
44 η "		3 39.8	38 7.50	2 35.23	3.25	+ 1.28	+ 39 18 41.6	9.5	+ 3.9
	7	6 36.0	41 4.17	2 35.23	3.79	+ 1.60	+ 43 35 21.6	5.2	+ 4.8
a)	7	10 43.0	45 11.85	2 35.23	2.58	+ 1.40	+ 32 53 59.5	16.1	+ 2.7
	8.9	11 57.2	46 26.26	2 35.23	4.27	+ 2.74	+ 46 59 24.0	1.8	+ 5.4
	8.9	14 51.5	49 21.03	2 35.23	3.73	+ 1.54	+ 43 9 42.4	5.6	+ 4.7
	8	18 12.0	52 42.08	2 35.22	4.37	+ 2.93	+ 47 40 46.8	1.2	+ 5.5
59 d "	6	21 44.7	56 15.36	2 35.22	2.67	+ 1.39	+ 33 51 41.6	15.1	+ 2.9
	9	24 17.3	16 58 48.38	2 35.22	2.15	+ 0.73	+ 28 22 17.9	21.1	+ 1.4
	7.8	26 37.6	17 1 9.06	2 35.22	3.85	+ 1.70	+ 44 4 49.6	4.7	+ 4.9
b)	8	29 42.8	4 14.76	2 35.22	4.52	+ 3.17	+ 48 38 56.8	0.2	+ 5.6
	7.8	33 27.8	8 0.38	2 35.22	4.06	+ 2.21	+ 45 33 27.4	3.3	+ 5.2
67 π "		35 36.3	10 9.23	2 35.22	3.00	+ 1.27	+ 37 1 53.1	11.9	+ 3.5
68 u "	6.5	37 24.4	11 57.63	2 35.22	2.62	+ 1.40	+ 33 18 47.5	15.7	+ 2.7
c) 72 w "	6	40 37.9	15 11.64	2 35.21	2.56	+ 1.40	+ 32 43 37.3	16.3	+ 2.7
d)	7	42 42.3	17 16.40	2 35.21	3.36	+ 1.32	+ 40 10 1.1	8.6	+ 4.1
	8	44 48.5	19 22.95	2 35.21	3.19	+ 1.28	+ 38 45 21.0	10.1	+ 3.9
	7.8	47 2.9	21 37.72	2 35.21	2.78	+ 1.34	+ 34 51 23.0	14.1	+ 3.1
76 λ "		50 2.6	24 37.91	2 35.21	1.96	− 0.04	+ 26 15 26.7	23.6	+ 0.7
	9.10	51 34.1	26 9.56	2 34.21	1.20	− 1.44	+ 16 54 45.0	35.2	− 1.7
	7.8	52 50.8	27 26.57	2 34.21	1.18	− 1.46	+ 16 38 23.5	35.6	− 1.7
79 "	6.7	13 56 38.2	31 14.59	2 34.21	1.81	− 0.54	+ 24 25 25.0	25.7	+ 0.1
	7.6	14 0 13.5	34 50.48	2 34.20	1.82	− 0.50	+ 24 36 15.7	25.5	+ 0.2
83 "	7	1 37.4	36 14.61	2 34.20	1.83	− 0.48	+ 24 39 28.1	25.5	+ 0.2
84 "	7	2 29.7	37 7.05	2 34.20	1.81	− 0.55	+ 24 24 24.0	25.7	+ 0.1
	6	5 35.7	40 13.56	2 34.20	1.27	− 1.40	+ 17 45 55.8	34.2	− 1.5
	7.8	7 24.4	42 2.55	2 34.20	1.39	− 1.29	+ 19 18 44.6	32.1	− 1.3
e)	7.8	9 41.6	44 20.13	2 34.19	1.63	− 0.96	+ 22 21 51.1	28.2	− 0.4
	9	13 32.8	48 11.96	2 34.19	2.34	+ 1.24	+ 30 23 41.8	18.9	+ 2.0
91 θ "		16 49.0	51 28.70	2 34.19	3.03	+ 1.27	+ 37 15 21.1	11.6	+ 3.5
	8.9	19 24.3	54 4.42	2 34.19	3.76	+ 1.57	+ 43 24 35.0	5.4	+ 4.7
	8	21 2.5	17 55 42.89	2 34.19	3.73	+ 1.54	+ 43 12 54.4	5.6	+ 4.7
	8	25 38.3	18 0 19.45	2 34.19	3.34	+ 1.31	+ 40 2 32.2	8.8	+ 4.1
f)	7.8	27 59.2	2 40.74	2 34.19	1.84	− 0.40	+ 24 54 56.0	25.2	+ 0.4
104 A "	5.6	31 40.4	6 22.55	2 34.19	2.42	+ 1.34	+ 31 19 54.4	17.9	+ 2.3
	6.7	33 47.3	8 29.80	2 34.19	3.18	+ 1.28	+ 38 41 23.5	10.2	+ 3.8
	7	36 50.7	11 33.70	2 34.18	3.59	+ 1.43	+ 42 3 34.7	6.7	+ 4.5
	9	40 10.0	14 53.54	2 34.18	4.17	+ 2.51	+ 46 17 32.1	2.5	+ 5.3
	6	43 54.4	18 38.56	2 34.18	4.58	+ 3.25	+ 48 58 52.8	0.2	+ 5.6
	9	47 33.0	22 17.76	2 34.18	4.44	+ 3.06	+ 48 8 27.0	0.7	+ 5.5
	8	55 58.7	30 44.84	2 34.18	3.18	+ 1.28	+ 38 41 38.0	10.2	+ 3.8
3 α Lyræ	1	14 57 28.4	32 14.79	2 34.17	3.17	+ 1.27	+ 38 33 28.2	10.3	+ 3.8
	7	15 0 25.6	35 12.48	2 34.17	3.42	+ 1.35	+ 40 42 43.0	8.1	+ 4.2
g)	7	3 54.3	38 41.75	2 34.17	3.22	+ 1.28	+ 39 3 32.0	9.8	+ 3.9
h) 4 ε "		5 1.7	39 49.33	2 34.17	3.27	+ 1.29	+ 39 25 9.6	9.4	+ 3.9
	6.7	7 36.1	42 24.15	2 34.17	2.44	+ 1.36	+ 31 29 48.0	17.7	+ 2.4
9 ν² "		9 36.8	44 25.18	2 34.17	2.52	+ 1.39	+ 32 16 52.0	16.9	+ 2.5
11 δ¹ "	7	13 58.2	48 47.28	2 34.17	2.96	+ 1.29	+ 36 40 41.0	12.2	+ 3.4
12 δ² "		14 44.7	49 33.91	2 34.17	2.96	+ 1.29	+ 36 36 4.7	12.3	+ 3.4
13 ε Aquilæ		17 36.3	52 25.98	2 34.16	− 1.05	− 1.59	+ 14 45 52.6	0 38.3	− 1.9
Saturn		19 56.9	54 46.97	2 34.16	+ 1.63	+ 1.67	− 22 15 26.9	2 43.8	− 1.2
41 π Sagittarii		24 34.7	18 59 25.53	2 34.16	1.55	+ 1.51	− 21 20 15.9	2 35.8	− 1.0
i)	5.6	28 50.7	19 3 42.23	2 34.16	0.89	+ 1.61	− 12 37 54.7	1 44.1	− 0.3
j)	6.7	32 9.9	7 1.81	2 34.16	+ 0.64	+ 1.85	− 9 3 39.2	30.1	− 0.4
	6	15 35 9.6	19 10 2.17	− 2 34.16	0.00	+ 0.35	+ 0 1 47.0	1 4.6	− 0.8

a ζ assumed as 15° 57′ 5″. 5; not 15° 57′ 15″. 5.
b Min. assumed as 29m. and 30m.; not 30m. and 31m.
c T. I rejected.
d ζ assumed as 8° 41′ 4″; not 8° 41′ 14″.
e Div. reading discordant.
f T. III assumed as 25s.; not 28s.
g T. III assumed as 24s.; not 4s.
h α of 5 ε² Lyræ and ζ of 4 ε¹ Lyræ observed.
i ζ assumed as 61° 29′; not 61° 34′.
j T. II assumed as 32m. 10s.; not 31m. 10s.

1783 MAY 15—Continued Zero corr. = + 1′ 45″.5.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	24 Aquilæ .	6	15 35 29.0	19 10 21.62	— 2 34.16	0.00	+ 0.36	— 0 3 14.1	— 1 4.8	— 0.8
		6	38 55.4	13 48.58	2 34.15	+ 0.05	+ 0.60	— 0 39 39.1	1 6.3	— 0.7
	30 δ " . .		42 17.2	17 10.93	2 34.15	— 0.19	— 0.23	+ 2 40 56.0	0 58.9	— 1.1
a)		6	45 10.0	20 4.20	2 34.15	0.17	— 0.19	+ 2 29 22.6	59.3	— 1.1
b)		6.7	46 59.3	21 53.80	2 34.15	0.17	— 0.19	+ 2 27 15.8	59.5	— 1.1
		6.7	54 28.8	29 24.53	2 34.15	2.62	+ 1.40	+ 33 17 52.2	15.7	+ 2.7
	5 α Sagittarii .		15 58 7.0	33 3.33	2 34.14	1.25	— 1.41	+ 17 30 16.7	34.5	— 1.6
	52 γ Aquilæ .		16 3 40.1	38 37.34	2 34.14	0.71	— 2.35	+ 10 4 44.0	45.5	— 1.8
	18 δ Cygni . .		5 52.8	40 50.40	2 34.14	3.92	+ 1.81	+ 44 34 24.8	4.2	+ 5.0
	53 α Aquilæ .		7 52.5	42 50.43	2 34.14	0.58	— 1.44	+ 8 17 29.6	48.4	— 1.7
	60 β " . .		16 12 18.8	19 47 17.46	— 2 34.14	— 0.41	— 0.90	+ 5 51 41.9	— 0 52.7	— 1.5

1783 MAY 16 Zero corr. = + 1′ 48″.5.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	30 α Hydræ .		5 42 17.2	9 19 28.91	— 2 34.64	+ 0.54	+ 1.88	— 7 44 11.0	— 1 25.7	— 0.5
c)	18 ε Leonis . .		5 58 53.2	9 36 7.64	2 34.63	— 1.83	— 0.45	+ 24 44 28.1	0 25.3	+ 0.3
	36 ζ " . .		6 29 53.8	10 7 13.33	2 34.61	1.81	— 0.53	+ 24 28 5.8	25.5	+ 0.2
d)	Regulus .	1	22 8.6	9 59 26.86	2 34.61	0.92	— 1.79	+ 13 0 1.3	40.8	— 2.0
e)	41 γ Leonis . .		6 33 17.9	10 10 37.99	2 34.61	1.52	— 1.15	+ 20 54 34.4	30.0	— 0.8
f)	84 τ " . .		7 41 52.2	11 19 23.56	2 34.56	— 0.28	— 0.45	+ 4 1 53.5	0 56.0	— 1.3
	87 e " . .		44 17.6	21 49.36	2 34.56	+ 0.13	+ 1.01	— 1 49 20.7	1 8.8	— 0.7
g)	90 " . .		48 30.4	26 2.86	2 34.56	— 1.29	— 1.39	+ 17 58 17.7	0 33.8	— 1.5
	1 ω Virginis .		7 52 21.2	29 54.29	2 34.56	0.65	— 1.80	+ 9 18 52.7	46.7	— 1.8
	94 β Leonis . .	2	8 3 3.2	40 38.05	2 34.56	1.12	— 1.51	+ 15 45 42.5	36.9	— 1.8
	5 β Virginis .	3	4 25.4	42 0.47	2 34.55	0.20	— 0.28	+ 2 58 12.7	58.4	— 1.2
		7	9 15.0	46 50.86	2 34.55	2.00	+ 0.19	+ 26 42 17.0	23.1	+ 0.9
		6	11 57.5	49 33.80	2 34.54	2.63	+ 1.40	+ 33 27 31.7	15.6	+ 2.8
		6.7	13 48.3	51 24.90	2 34.54	2.81	+ 1.33	+ 35 12 48.2	13.7	+ 3.1
		6.5	15 32.6	53 9.49	2 34.54	3.02	+ 1.27	+ 37 13 40.9	11.6	+ 3.5
		7.8	17 25.7	55 2.90	2 34.54	2.38	+ 1.29	+ 30 51 45.6	18.4	+ 2.2
		8	19 55.7	11 57 33.31	2 34.54	1.81	— 0.55	+ 24 23 22.3	25.8	+ 0.1
		6.5	24 43.2	12 2 21.60	2 34.54	2.16	+ 0.77	+ 28 27 51.7	21.0	+ 1.4
		7.8	28 40.3	6 19.35	2 34.54	3.40	+ 1.33	+ 40 31 18.8	8.3	+ 4.2
		8.9	30 47.9	8 27.29	2 34.53	3.43	+ 1.35	+ 40 46 14.2	8.1	+ 4.3
		8	33 14.2	10 53.99	2 34.53	3.52	+ 1.39	+ 41 29 20.5	7.3	+ 4.4
		7	36 1.3	13 41.55	2 34.53	1.28	— 1.39	+ 17 55 45.1	34.0	— 1.5
		6	39 17.0	16 57.79	2 34.53	1.86	— 0.36	+ 35 6 27.0	24.9	+ 0.4
	17 d Comæ . .	5	43 0.3	20 41.70	2 34.52	2.03	+ 0.22	+ 27 5 23.5	22.7	+ 1.0
h)		6.7	42 50.2	20 31.57	2 34.52	2.03	+ 0.22			
	21 g " . .		45 6.3	22 48.04	2 34.52	1.92	— 0.18	+ 25 44 38.0	24.2	+ 0.7
	22 " . .		47 40.6	25 22.76	2 34.52	1.89	— 0.26	+ 25 27 28.1	24.5	+ 0.5
	25 " . .		51 1.3	28 44.01	2 34.52	1.31	— 1.36	+ 18 15 53.8	33.5	— 1.5
	26 " . .		53 14.9	30 57.98	2 34.52	1.63	— 0.98	+ 22 14 3.3	28.4	— 0.5
	10 Can. Ven.		8 59 36.8	37 20.93	2 34.51	3.39	+ 1.33	+ 40 25 50.7	8.4	+ 4.1
	30 Comæ . .		9 3 35.3	41 20.08	2 34.51	2.18	+ 0.86	+ 28 42 40.1	20.8	+ 1.5
	31 " . .		5 59.2	43 44.38	2 34.51	— 2.18	+ 0.86	+ 28 41 54.8	0 20.8	+ 1.5
		7	9 19 47.8	12 57 35.25	2 34.50	+ 0.97	+ 1.57	— 13 45 16.8	1 48.8	— 0.4
		7.8	10 6 3.7	13 43 58.75	2 34.47	+ 0.68	+ 1.81	— 9 36 41.0	1 32.1	— 0.4
i)		7.8	14 3.0	51 59.35	2 34.46	— 0.27	— 0.40	+ 3 43 5.0	0 58.0	— 1.3
	93 τ Virginis .		15 17.5	53 14.05	2 34.46	— 0.18	— 0.21	+ 2 35 7.0	0 59.1	— 1.1
j)	557 Mayer . .		19 51.2	13 57 48.53	2 34.46	+ 0.58	+ 1.88	— 8 16 45.0	1 27.6	— 0.5
		8	24 13.3	14 2 11.32	2 34.46	0.35	+ 1.73	— 4 57 12.0	17.4	— 0.5
		8	25 7.9	3 6.07	2 34.46	0.36	+ 1.76	— 5 6 39.0	17.7	— 0.5
	564 " . .	7	27 39.9	5 38.49	2 34.45	0.35	+ 1.73	— 4 56 31.0	17.2	— 0.5
	99 ι Virginis .		29 15.4	7 14.25	2 34.45	0.35	+ 1.73	— 4 58 10.6	17.3	— 0.5
	102 $υ^1$ " . .	6	32 58.8	10 58.26	2 34.45	0.09	+ 0.84	— 1 16 8.6	7.8	— 0.7
	103 $υ^2$ " . .	6	35 24.1	13 23.96	2 34.45	0.07	+ 0.74	— 1 0 5.4	7.1	— 0.7
	105 φ " . .		41 37.7	19 38.58	2 34.44	+ 0.09	+ 0.84	— 1 15 39.2	1 7.8	— 0.7
		9	10 49 18.5	14 27 20.64	— 2 34.44	— 0.31	— 0.53	+ 4 24 33.0	— 0 55.5	— 1.3

a ζ assumed as 46° 21′; not 46° 22′.
b ζ assumed as 46° 23′ 49″; not 46° 23′ 19″.
c T. III assumed as 18s.5; not 15s.5: and name assumed as 17 ε Leonis; not 18 ε Leonis.
d ζ assumed as 35° 51′ 5″; not 35° 51′ 15″.
e Min. assumed as 33m. and 34m; not 34m. and 35m.
f Div. assumed as 47 12; not 47 11.
g Min. assumed as 48m.; not 47m.
h ζ assumed as that of a star whose Catal. place differs 50″ from that of 7 Comæ.
i ζ assumed as 45° 8′; not 45° 3′.
j T. III assumed as 20m. 14s.5.; not 20m. 24s.5.: not 557 Mayer, but 95 Virginis.

1783 MAY 16—Continued Zero corr. = + 1′ 48″. 5.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a) Libræ	6	10 55 13.0	14 33 16.11	− 2 34.43	+ 1.75	+ 2.10	− 24 2 41.5	− 2 58.6	− 1.7
b)	6	10 58 11.7	36 15.30	2 34.43	1.62	+ 1.66	− 22 12 41.6	2 43.4	− 1.2
7 μ "	5	11 1 57.5	40 1.72	2 34.43	0.94	+ 1.58	− 13 14 17.9	1 46.6	− 0.3
10 "		4 11.9	42 16.49	2 34.43	1.25	+ 1.60	− 17 26 49.4	2 8.3	− 0.5
14 "	6.7	9 20.2	47 25.63	2 34.43	1.81	+ 2.41	− 24 32 13.6	3 7.2	− 2.0
19 δ "		13 52.5	51 58.68	2 34.42	0.54	+ 1.88	− 7 39 24.4	1 25.4	− 0.5
21 ν^1 "		19 0.6	57 7.62	2 34.42	1.09	+ 1.63	− 15 24 18.0	56.8	− 0.5
c) 22 ν^2 "		19 11.1	14 57 18.15	2 34.42	1.11	+ 1.63	− 15 38 1.0	1 58.4	− 0.5
24 ι^1 "		24 19.2	15 2 27.09	2 34.42	1.36	+ 1.44	− 18 57 11.8	2 17.8	− 0.7
d) 26 "		26 46.3	4 54.59	2 34.41	1.21	+ 1.64	− 16 56 38.8	2 5.4	− 0.5
27 β "		29 46.8	7 55.58	2 34.41	0.60	+ 1.87	− 8 34 43.0	1 28.6	− 0.4
28 "		33 1.3	11 10.62	2 34.41	1.24	+ 1.61	− 17 21 17.6	2 7.8	− 0.5
30 o^2 "		35 21.2	13 30.90	2 34.41	1.01	+ 1.59	− 14 20 58.5	1 51.8	− 0.4
603 Mayer	6.7	41 43.5	19 54.25	2 34.40	1.18	+ 1.66	− 16 40 40.6	2 4.0	− 0.5
34 ζ^3 Libræ	6.7	42 51.1	21 2.04	2 34.40	1.13	+ 1.64	− 15 51 5.0	1 59.5	− 0.5
35 ζ^4 "		45 4.3	23 15.60	2 34.40	1.15	+ 1.67	− 16 6 12 2	2 0.6	− 0.5
	7	47 6.7	25 18.33	2 34.40	1.17	+ 1.67	− 16 23 45.0	2.5	− 0.5
	7.8	48 44.0	26 55.90	2 34.40	1.16	+ 1.67	− 16 16 36.5	2.0	− 0.5
	7.6	50 58.1	29 10.37	2 34.40	1.64	+ 1.71	− 22 24 47.4	2 45.7	− 1.3
e)	6	11 56 43.1	34 56.31	2 34.39	2.23	+ 4.61	− 29 18 17.2	4 23.4	− 4.9
5 λ Lupi	3	12 1 28.5	39 42.59	2 34.39	2.57	+ 5.30	− 32 52 43.6	6 9.3	− 8.2
2 A^1 Scorpii	4.5	4 55.7	43 10.26	2 34.38	1.82	+ 2.47	− 24 38 40.0	3 9.1	− 2.0
4 "	6	6 42.5	44 57.36	2 34.38	1.91	+ 2.95	− 25 35 15.0	3 20.6	− 2.4
	7.8	21 3.0	15 59 20.22	2 34.37	1.36	+ 1.46	− 18 51 34.2	2 17.5	− 0.7
14 ν "		23 41.2	16 1 58.85	2 34.37	1.36	+ 1.45	− 18 52 34.2	2 17.8	− 0.7
1 δ Ophiuchi		27 16.2	5 34.44	2 34.37	0.22	+ 1.37	− 3 8 2.2	1 12.7	− 0.7
f) 20 σ Scorpii		32 15.3	10 34.36	2 34.37	+ 1.86	+ 2.63	− 25 2 3.8	3 13.7	− 2.2
20 γ Herculis		36 40.8	15 0.59	2 34.37	− 1.41	− 1.26	+ 19 39 0.2	0 31.8	− 1.2
Antares	1	40 19.7	18 40.09	2 34.36	+ 1.94	+ 3.13	− 25 54 33.7	3 25.2	− 2.6
	6.7	44 17.3	22 38.34	2 34.36	0.85	+ 1.64	− 11 57 15.7	1 41.3	− 0.3
g) 13 ζ Ophiuchi		49 26.2	27 48.09	2 34.36	+ 0.71	+ 1.79	− 10 7 11.0	1 34.1	− 0.4
37 Herculis	6.7	54 8.0	32 30.66	2 34.35	− 0.32	− 0.58	+ 4 38 23.2	0 55.2	− 1.4
43 i "	6	12 59 40.5	38 4.07	2 34.35	0.63	− 1.65	+ 8 58 17.4	47.3	− 1.8
47 κ "		13 4 2.2	16 42 26.49	− 2 34.35	− 0.53	− 1.30	+ 7 36 58.4	− 0 49.8	− 1.7

1783 MAY 17 Zero corr. = + 1′ 45″. 6.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
	6	8 41 10.3	12 22 47.95	− 2 33.53	− 1.27	− 1.40	+ 17 47 41.6	− 0 34.0	− 1.6
20 Virginis		43 5.5	24 43.47	2 33.53	0.81	− 3.01	+ 11 28 29.0	43.2	− 1.9
	6	44 27.7	26 5.89	2 33.53	0.63	− 1.62	+ 8 54 58.0	47.0	− 1.8
	6	47 8.2	28 46.83	2 33.53	0.68	− 2.29	+ 9 58 22.5	45.5	− 1.8
		50 54.4	32 33.65	2 33.52	− 0.70	− 2.30	+ 10 0 13.0	0 45.4	− 1.8
	7	55 2.2	36 42.13	2 33.52	+ 0.19	+ 1.26	− 2 42 43.8	1 10.9	− 0.7
35 "	6	8 57 44.9	39 25.28	2 33.52	− 0.33	− 0.60	+ 4 44 35.2	0 54.5	− 1.4
37 "	6	9 1 29.8	43 10.80	2 33.52	− 0.30	− 0.50	+ 4 13 16.8	0 55.5	− 1.3
40 ψ "		3 56.8	45 38.20	2 33.52	+ 0.59	+ 1.87	− 8 21 57.8	1 27.2	− 0.5
	7	6 54.0	48 35.88	2 33.52	0.54	+ 1.88	− 7 44 33.6	25.2	− 0.5
	8.9	10 4.5	12 51 46.90	2 33.51	0.56	+ 1.88	− 7 56 0.0	25.8	− 0.5
	6	19 2.7	13 0 46.57	2 33.51	1.10	+ 1.62	− 15 21 21.0	55.9	− 0.5
63 "	6.5	21 21.2	3 5.45	2 33.51	+ 1.07	+ 1.61	− 15 1 32.4	1 54.4	− 0.5
h) 534 Mayer	6.7	23 46.0	5 30.72	2 33.51	− 0.18	− 0.22	+ 2 35 54.1	0 58.8	− 1.2
61 Virginis	6.5	27 52.3	9 37.62	2 33.51	+ 1.22	+ 1.63	− 17 6 1.6	2 5.4	− 0.5
67 α "		34 34.1	16 20.52	2 33.50	+ 0.71	+ 1.79	− 10 1 53.0	1 33.0	− 0.4
79 ζ "		44 26.5	26 14.54	2 33.50	− 0.03	+ 0.20	+ 0 30 14.6	3.1	− 0.8
		53 28.3	35 17.82	2 33.49	+ 0.97	+ 1.57	− 13 39 55.0	1 47.8	− 0.4
5 υ Boötis		9 59 48.9	41 39.46	2 33.49	− 1.20	− 1.44	+ 16 51 26.6	0 35.2	− 1.7
7 "	7	10 3 38.2	45 29.39	2 33.49	− 1.37	− 1.31	+ 18 59 6.9	32.4	− 1.3
8 η "		5 7.8	46 59.23	2 33.49	1.40	− 1.27	+ 19 28 6.2	31.8	− 1.2
9 "		10 7 24.8	13 49 16.62	2 33.49	− 2.16	+ 0.79	+ 28 32 7.3	− 0 20.9	+ 1.4

a ζ assumed as 72° 53′; not 72° 33′.
b T. I assumed as 57m.; not 55m.
c ζ assumed as 64° 29′ 6″; not 64° 29′ 26″.
d ζ assumed as 65° 47′ 44″; not 65° 47′ 14″.
e ζ assumed as 83° 5′ 14″; not 83° 5′ 13″.
f T. I assumed as 50s; not 54s.
g ζ assumed as 58°; not 55°.
h T. III assumed as 24m. 9s; not 24m. 49s.: ζ assumed as 46° 15′ 8″; not 46° 15′ 48″.

1783 MAY 20 — Zero corr. = + 1′ 50″.1.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	94 β Leonis	2	7 47 16.7	11 40 35.17	− 2 31.97	− 1.12	− 1.51	+ 15 45 46.4	− 0 36.6	− 1.8
	5 β Virginis							+ 2 58 14.4	57.8	− 1.2
	8 π "		7 59 0.5	52 20.90	2 31.97	0.54	− 1.32	+ 7 48 19.0	48.9	− 1.7
	9 o "		8 3 24.7	11 56 45.82	2 31.97	0.69	− 2.24	+ 9 55 4.1	45.5	− 1.8
	4 Comæ		10 2.3	12 3 24.51	2 31.96	2.03	+ 0.20	+ 27 3 20.1	22.5	+ 1.0
a)	7 h "		14 33.7	7 56.65	2 31.96	1.85	− 0.34	+ 25 7 41.6	24.8	+ 0.4
	13 f "		22 35.3	15 59.57	2 31.96	2.04	+ 0.30	+ 27 16 40.4	22.3	+ 1.0
	18 "		27 45.3	21 10.42	2 31.96	1.86	− 0.30	+ 25 17 7.8	24.6	+ 0.4
	21 g "		29 19.4	22 44.78	2 31.95	1.90	− 0.18	+ 25 44 37.2	24.0	+ 0.6
b)	27 Virginis		39 50.0	33 17.11	2 31.95	0.81	− 2.97			
	30 ρ "		40 4.6	33 31.75	2 31.95	0.80	− 3.01	+ 11 24 44.3	43.2	− 1.9
			44 19.7	37 47.54	2 31.95	2.74	+ 1.35	+ 34 42 27.9	14.2	− 3.0
		7	48 17.0	41 45.49	2 31.95	2.06	+ 0.41	+ 27 35 29.6	21.9	+ 1.2
	31 Comæ		50 12.7	43 41.51	2 31.95	2.16	+ 0.86	+ 28 41 54.2	20.7	+ 1.5
	36 "		57 17.7	50 47.67	2 31.95	1.32	− 1.34	+ 18 33 35.0	33.0	− 1.4
	38 "		8 59 31.9	53 2.24	2 31.94	1.30	− 1.36	+ 18 16 25.8	33.3	− 1.5
	41 "		9 5 48.9	12 59 20.27	2 31.94	2.18	+ 0.88	+ 28 46 0.4	20.7	+ 1.5
c)		7	6 33.1	13 0 4.59	2 31.94	2.18	+ 0.88			
	42 "		8 29.3	2 1.11	2 31.94	1.34	− 1.33	+ 18 39 31.8	32.9	− 1.4
	23 Can. Ven.		19 36.8	13 10.44	2 31.94	− 3.47	+ 1.38	+ 41 15 50.0	0 7.5	+ 4.3
d)	67 α Virginis		22 44.3	16 18.45	2 31.94	+ 0.70	+ 1.79	− 10 1 58.2	1 33.1	− 0.4
		6.7	31 31.4	25 6.99	2 31.93	− 1.88	− 0.26	+ 25 27 15.0	0 24.4	+ 0.5
		6.5	35 45.8	29 22.09	2 31.93	1.90	− 0.19	+ 25 41 58.2	24.2	+ 0.6
		7	37 42.8	31 19.41	2 31.93	1.86	− 0.32	+ 25 12 57.0	24.7	+ 0.4
	2 Boötis		39 45.8	33 22.75	2 31.93	1.72	− 0.75	+ 23 34 34.4	26.6	0.0
		6	42 28.5	36 5.90	2 31.93	1.74	− 0.71	+ 23 46 31.4	26.4	0.0
	3 "	6	45 36.5	39 14.42	2 31.93	2.00	+ 0.11	+ 26 46 13.3	22.9	+ 1.0
	6 "	5.6	48 25.4	42 3.78	2 31.93	1.62	− 0.96	+ 22 19 23.5	28.2	− 0.5
	7 "	7	51 48.8	45 27.74	2 31.93	1.36	− 1.31	+ 18 59 6.4	32.4	− 1.3
	8 η "		53 19.1	46 58.29	2 31.93	1.40	− 1.27	+ 19 28 3.4	31.8	− 1.2
		7.8	56 23.5	50 3.18	2 31.93	1.22	− 1.42	+ 17 14 50.0	34.7	− 1.7
			9 56 38.0	50 17.72	2 31.92	1.24	− 1.41	+ 17 26 41.2	34.4	− 1.7
		7	10 2 12.4	55 53.03	2 31.92	1.72	− 0.76	+ 23 31 17.6	26.7	0.0
		7	6 5.8	13 59 47.07	2 31.92	2.23	+ 1.09	+ 29 27 5.8	19.9	+ 1.7
	12 d "		9 24.1	14 3 5.91	2 31.92	1.94	− 0.09	+ 26 6 0.4	23.7	+ 0.7
	Arcturus		14 40.7	8 23.38	2 31.92	1.46	− 1.21	+ 20 17 41.6	30.8	− 1.1
	19 λ Boötis		17 1.2	10 44.26	2 31.92	4.24	+ 2.76	+ 47 3 32.1	1.8	+ 5.4
	37 ξ "		50 11.0	43 59.51	2 31.91	1.44	− 1.23	+ 19 59 5.4	31.2	− 1.1
		7	52 1.0	45 49.81	2 31.91	1.18	− 1.47	+ 16 34 36.5	35.7	− 1.7
			55 52.5	49 41.95	2 31.91	1.23	− 1.42	+ 17 14 50.3	34.8	− 1.7
e)		8	10 59 55.7	53 45.81	2 31.90	1.67	− 0.87	+ 22 53 11.6	27.5	− 0.2
	42 β "		11 2 32.6	14 56 23.14	2 31.90	3.46	+ 1.37	+ 41 13 23.5	7.6	+ 4.3
	45 c "		6 31.5	15 0 22.69	2 31.90	1.90	− 0.19	+ 25 41 47.3	24.2	+ 0.6
f)		7.8	10 30.8	4 22.65	2 31.90	1.50	− 1.16	+ 20 50 53.3	30.1	− 0.8
g)			12 40.2	6 32.40	2 31.90	1.74	− 0.71	+ 23 46 20.6	26.4	0.0
h)			17 23.7	11 16.68	2 31.90	1.54	− 1.10	+ 21 21 3.7	29.4	− 0.8
	1 o Cor. Bor.		11 19 52.3	15 13 45.69	− 2 31.90	− 2.32	+ 1.24	+ 30 23 5.0	− 0 18.9	+ 2.0

1783 MAY 29 — Zero corr. = + 1′ 45″.5.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		6.7	9 49 32.4	14 18 40.00	− 2 28.67	− 0.62	− 1.81	+ 9 20 44.7	− 0 46.3	− 1.8
	25 ρ Boötis		55 52.0	25 0.63	2 28.67	2.28	+ 1.34	+ 31 18 17.7	17.8	+ 2.2
i)	28 σ "		9 58 37.0	27 46.08	2 28.67	2.22	+ 1.28	+ 30 40 8.8	18.7	+ 2.2
		7	10 3 26.0	32 35.87	2 28.67	0.66	− 2.23	+ 9 53 59.2	45.5	− 1.8
	31 "		4 23.2	33 33.23	2 28.67	0.60	− 1.70	+ 9 4 44.8	46.8	− 1.8
			7 31.0	36 41.55	2 28.67	0.56	− 1.53	+ 8 36 31.8	47.4	− 1.8
		6	12 7.7	41 19.01	2 28.66	1.77	− 0.31	+ 25 15 4.4	24.6	+ 0.4
j)		9	14 25.5	43 37.19	2 28.66	1.66	− 0.70	+ 23 47 36.0	26.3	0.0
			16 34.8	45 46.84	2 28.66	1.12	− 1.47	+ 16 34 39.0	35.6	− 1.7
		6	10 18 37.1	14 47 49.48	− 2 28.66	− 2.42	+ 1.40	+ 32 52 45.2	− 0 16.1	+ 2.7

a Div. assumed as 25 4; not 25 5.
b. T. II assumed as 51s.; not 41s.
c ζ assumed as that of a star whose Catalogue place differs 4′ 15″ from that of 41 Comæ.
d ζ assumed as 58° 53′; not 58° 58′.
e ζ assumed as 25° 57′; not 25° 27′.
f T II assumed as 30.5s.; not 33.5s.
g T. II assumed as 5.5s.; not 15.5s.
h T II assumed as 22.5s.; not 52.5s.
i ζ assumed as 18° 10′; not 18° 20′.
j ζ assumed as 25° 3′ 29″; not 25° 3′ 39″.

1783 MAY 29—Continued Zero corr. = + 1′ 45″.5

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	10 21 29.0	14 50 41.85	− 2 28.66	− 1.80	− 0.24	+ 25 31 39.8	− 0 24.3	+ 0.6
	9	27 58.3	14 57 12.21	2 28.66	1.41	− 1.18	+ 20 40 23.2	30.1	− 0.9
45 c Boötis . .		31 5.0	15 0 19.41	2 28.66	1.80	− 0.19	+ 25 41 51.6	24.1	+ 0.6
	6	32 26.8	1 41.43	2 28.66	1.88	− 0.13	+ 25 55 20.2	23.8	+ 0.7
	6.7	35 44.5	4 59.67	2 28.66	1.60	− 0.84	+ 23 7 0.7	27.3	− 0.2
	6.7	37 13.9	6 29.31	2 28.66	1.65	− 0.71	+ 23 46 24.4	26.5	0.0
	7	42 20.5	11 36.75	2 28.65	2.31	+ 1.37	+ 31 36 43.9	17.5	+ 2.5
	6	47 52.2	17 9.36	2 28.65	3.18	+ 1.32	+ 40 20 1.0	8.5	+ 4.1
		49 24.4	18 41.81	2 28.65	1.39	− 1.22	+ 20 13 45.8	30.7	− 1.1
	6	54 50.8	24 9.10	2 28.65	2.34	+ 1.38	+ 32 0 39.9	17.0	+ 2.5
5 α Cor. Bor. .		10 58 44.1	28 3.04	2 28.65	1.95	+ 0.36	+ 27 25 42.2	22.1	+ 1.1
a)	7	11 2 58.4	32 18.04	2 28.65	1.15	− 1.43	+ 17 0 14.8	35.0	− 1.7
19 τ^3 Serpentis .		4 15.0	33 34.85	2 28.65	1.12	− 1.45	+ 16 42 49.6	35.4	− 1.7
24 α " . .		6 48.5	36 8.77	2 28.65	0.46	− 1.17	+ 7 6 4.5	50.1	− 1.6
b) 28 β " . .		9 24.6	38 45.30	2 28.65	1.08	− 1.49	+ 16 5 23.8	36.2	− 1.8
35 κ " . .		12 11.2	41 32.36	2 28.64	1.29	− 1.32	+ 18 47 59.2	32.7	− 1.3
38 ρ " . .		14 56.6	44 18.21	2 28.64	1.49	− 1.06	+ 21 36 59.0	29.0	− 0.5
40 " . .		17 23.2	46 45.21	2 28.64	0.61	− 1.76	+ 9 12 44.6	46.7	− 1.8
1 χ Herculis .		21 23.0	50 45.67	2 28.64	3.51	+ 1.54	+ 43 10 24.7	5.6	+ 4.7
5 r " . .		24 40.7	54 3.92	2 28.64	1.24	− 1.35	+ 18 24 31.2	33.2	− 1.5
6 υ " . .		29 12.1	15 58 36.06	2 28.64	3.97	+ 2.61	+ 46 36 47.2	2.2	+ 5.4
κ " . .		31 26.8	16 0 51.13	2 28.64	1.19	− 1.40	+ 17 36 50.0	34.0	− 1.6
48 Serpentis .		34 48.7	4 13.58	2 28.64	1.17	− 1.42	+ 17 12 59.0	34.9	− 1.7
12 Herculis .		37 20.0	6 45.29	2 28.64	0.55	− 1.46	+ 8 23 58.8	48.0	− 1.7
18 υ Cor. Bor. .		41 9.9	10 35.82	2 28.64	2.14	+ 1.14	+ 29 40 16.2	19.6	+ 1.8
c) 22 τ Herculis .		46 20.3	15 47.07	2 28.63	3.98	+ 2.69	+ 46 48 15.2	2.0	+ 5.4
25 " . .		50 46.2	20 13.70	2 28.63	2.91	+ 1.27	+ 37 52 1.4	11.0	+ 3.7
27 β " . .		53 59.6	23 27.63	2 28.63	1.51	− 1.02	+ 21 56 53.4	28.6	− 0.5
d) 31 " . .		56 26.2	25 54.64	2 28.63	2.53	+ 1.39	+ 33 57 35.8	15.0	+ 2.9
33 " . .		11 59 23.5	28 52.41	2 28.63	0.50	− 1.29	+ 7 32 34.0	49.4	− 1.7
36 " . .		12 2 52.0	32 21.48	2 28.63	0.30	− 0.58	+ 4 37 38.4	54.7	− 1.4
37 " . .		2 55.7	32 25.19	2 28.63	0.30	− 0.58	+ 4 38		
39 " . .		5 51.4	35 21.37	2 28.63	1.94	+ 0.32	+ 27 19 13.4	22.3	+ 1.0
19 Ophiuchi .		9 15.0	38 45.53	2 28.63	0.16	− 0.19	+ 2 27 15.0	59.1	− 1.0
48 Herculis .		13 50.1	43 21.38	2 28.62	2.19	+ 1.23	+ 30 19 13.0	18.9	+ 2.0
50 " . .		15 11.8	44 43.30	2 28.62	2.18	+ 1.21	+ 30 9 39.0	19.1	+ 1.9
56 " . .		19 10.1	48 42.25	2 28.62	1.83	− 0.09	+ 26 3 57.1	23.7	+ 0.7
58 ε " . .		24 58.5	54 31.60	2 28.62	2.28	+ 1.32	+ 31 13 44.5	17.9	+ 2.2
60 " . .		28 19.0	16 57 52.65	2 28.62	0.87	− 1.79	+ 13 1 52.6	40.6	− 2.0
62 " . .		32 34.2	17 2 8.55	2 28.62	1.72	− 0.45	+ 24 45 19.5	25.2	+ 0.3
64 α " . .		37 44.2	7 19.40	2 28.62	0.98	− 1.60	+ 14 37 45.8	38.4	− 1.9
66 ω " . .		41 24.1	10 59.90	2 28.61	0.73	− 2.90	+ 11 5 30.9	43.7	− 1.9
49 σ Ophiuchi .		48 40.1	18 17.09	2 28.61	0.28	− 0.52	+ 4 19 37.2	55.4	− 1.3
77 κ Herculis .		53 54.5	23 32.35	2 28.61	4.22	+ 3.12	+ 48 24 54.1	0.4	+ 5.5
55 α Ophiuchi .		12 57 47.2	27 25.69	2 28.61	0.84	− 1.84	+ 12 42 37.6	41.3	− 2.0
e) 82 y Herculis .		13 3 50.1	33 29.58	2 28.61	4.26	+ 3.18	+ 48 41 6.0	0.2	+ 5.6
85 ι " . .		6 12.8	35 52.68	2 28.61	3.88	+ 2.43	+ 46 5 43.0	2.7	+ 5.3
86 μ " . .		10 50.1	40 30.75	2 28.60	1.98	+ 0.49	+ 27 49 51.6	21.7	+ 1.3
f) ·	7.8	19 9.5	43 50.70	2 28.60	4.12	+ 2.93	+ 47 39 37.2	1.2	+ 5.5
88 ζ " . .		17 13.9	46 55.60	2 28.60	4.22	+ 3.12	+ 48 25 30.4	0.4	+ 5.5
94 υ " . .		13 23 1.5	17 52 44.16	− 2 28.60	− 2.18	+ 1.21	+ 30 11 23.0	− 0 19.1	+ 1.9

1783 MAY 31 Zero corr. = + 1′ 45″.4

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
94 β Leonis . .	2	7 3 57.2	11 40 30.69	− 2 27.57	− 1.07	− 1.51	+ 15 45 45.1	− 0 36.2	− 1.8
5 β Virginis .		5 19.4	11 41 53.11	2 27.57	− 0.20	− 0.28	+ 2 58 13.4	0 57.3	− 1.2
2 ε Corvi . .		24 48.8	12 1 25.71	2 27.56	+ 1.49	+ 1.52	− 21 24 13.6	2 33.3	− 1.0
7 γ " . .		30 28.6	7 6.44	2 27.56	+ 1.11	+ 1.67	− 16 20 14.8	1 59.5	− 0.5
16 α Comæ . .		41 58.3	18 38.03	2 27.55	− 2.02	+ 0.58	+ 28 0 14.4	0 21.2	+ 1.3
29 γ Virginis .		7 56 27.3	33 9.41	2 27.54	+ 0.02	+ 0.44	− 0 16 16.1	1 4.0	− 0.8
32 d^2 " . .		8 0 27.9	12 37 10.67	− 2 27.54	− 0.59	− 1.60	+ 8 50 36.1	− 0 46.6	− 1.8

a ζ assumed as 31° 50′; not 31° 49′.
b Div. assumed as 34 15 2; not 34 12 15.
c Name not 22 τ Herculis.
d Min. assumed as 56m.; not 54m.
e ζ assumed as 0° 9′ 59″; not 0° 9′ 29″.
f ζ assumed as 1°; not 11°.

1783 MAY 31—Continued Zero corr. = + 1′ 45″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	29 Comæ . .		8 3 50.4	12 40 33.72	− 2 27.54	− 1.04	− 1.55	+ 15 17 21.0	− 0 36.9	− 1.9
	37 " . .		15 38.3	12 52 23.56	2 27.53	2.37	+ 1.38	+ 31 55 55.9	17.0	+ 2.5
	20 Can. Ven.		33 31.5	13 10 19.70	2 27.52	− 3.33	+ 1.40	+ 41 41 24.0	0 7.0	+ 4.4
a)	67 α Virginis .		39 24.7	16 13.87	2 27.52	+ 0.67	+ 1.79	− 10 1 54.5	1 31.9	− 0.4
	542 Mayer . .	7	43 46.7	20 36.59	2 27.52	+ 0.02	+ 0.43	− 0 14 50.2	1 4.2	− 0.8
		6	48 11.8	25 2.42	2 27.52	− 1.80	− 0.26	+ 25 27 15.0	0 24.1	+ 0.5
		6	52 26.7	29 18.02	2 27.51	1.83	− 0.19	+ 25 42 1.4	23.9	+ 0.6
		8.9	54 23.4	31 15.04	2 27.51	1.79	− 0.33	+ 25 12 57.6	24.3	+ 0.4
	2 Boötis . .	8	56 25.9	33 17.87	2 27.51	1.66	− 0.75	+ 23 34 35.4	26.3	0.0
		6	8 59 9.5	36 1.92	2 27.51	− 1.67	− 0.71	+ 23 46 31.4	0 26.1	0.0
		7	9 1 40.8	38 33.63	2 27.51	+ 0.38	+ 1.80	− 5 37 31.0	1 17.9	− 0.5
	88 Virginis .	6.7	2 32.3	39 25.27	2 27.51	+ 0.38	+ 1.81	− 5 45 33.9	1 18.2	− 0.5
		7	4 49.0	41 42.35	2 27.51	− 2.02	+ 0.59	+ 28 2 43.0	0 21.2	+ 1.3
		6	8 56.5	45 50.53	2 27.51	2.17	+ 1.14	+ 29 41 46.6	19.4	+ 1.8
		7	11 50.2	48 44.71	2 27.50	2.17	+ 1.14	+ 29 42 52.0	19.4	+ 1.8
		7	16 53.7	13 53 49.04	2 27.50	1.29	− 1.33	+ 18 42 21.8	32.4	− 1.4
		7	27 39.3	14 4 36.41	2 27.50	1.51	− 1.06	+ 21 38 48.0	28.7	− 0.6
	Arcturus .	1	31 21.1	8 18.82	2 27.49	1.41	− 1.21	+ 20 17 41.6	30.3	− 1.1
			33 15.5	10 13.53	2 27.49	− 4.02	+ 2.59	+ 46 32 37.0	0 2.2	+ 5.4
		7	36 4.0	13 2.49	2 27.49	+ 0.47	+ 1.87	− 7 6 1.0	1 22.4	− 1.6
		6	38 55.3	15 54.26	2 27.49	− 1.88	− 0.03	+ 26 18 12.8	0 23.2	+ 0.7
	22 f Boötis .		41 54.8	18 54.25	2 27.49	1.40	− 1.22	+ 20 11 8.9	30.5	− 1.1
		7	44 24.3	21 24.16	2 27.49	3.42	+ 1.42	+ 41 58 32.4	6.7	+ 4.5
		6.7	46 35.6	23 35.82	2 27.49	3.51	+ 1.49	+ 42 45 6.2	6.0	+ 4.6
		8	48 33.3	25 33.84	2 27.49	3.71	+ 1.76	+ 44 19 4.3	4.4	+ 4.9
		6	51 49.3	28 50.38	2 27.48	1.70	− 0.60	+ 24 10 40.8	25.6	0.0
		7	56 29.2	33 31.05	2 27.48	2.31	+ 1.34	+ 31 21 31.1	17.6	+ 2.3
		7	56 39.4	33 41.28	2 27.48	2.32	+ 1.34	+ 31 26 5.0	17.5	+ 2.3
	34 Boötis . .		9 59 22.4	14 36 24.72	2 27.48	− 1.97	+ 0.36	+ 27 25 55.1	0 21.9	+ 1.1
		6	10 58 15.2	15 35 27.19	2 27.45	+ 1.96	+ 3.77	− 27 20 11.2	3 42.9	− 3.3
	6 π Libræ . .		11 10 57.5	48 11.58	2 27.44	1.80	+ 2.88	− 25 27 0.0	3 15.5	− 2.3
	8 β Scorpii . .		18 3.0	15 55 18.25	2 27.44	1.32	+ 1.42	− 19 11 24.4	2 17.5	− 0.7
	13 c² " . .	5	24 7.3	16 1 23.55	2 27.44	1.96	+ 3.77	− 27 18 57.5	3 42.3	− 3.4
	641 Mayer . .		30 0.2	7 17.42	2 27.44	2.02	+ 4.06	− 28 1 22.5	54.5	− 3.8
	20 σ Scorpii . .		33 10.1	10 27.84	2 27.43	1.77	+ 2.64	− 25 1 58.2	3 10.6	− 2.2
	5 g Ophiuchi .	6	37 44.3	15 2.77	2 27.43	1.61	+ 1.85	− 22 54 53.4	2 47.6	− 1.5
b)	Antares .		41 14.7	18 33.75	2 27.43	1.85	+ 3.12	− 25 54 37.0	3 21.9	− 2.6
		6	43 58.0	21 17.49	2 27.43	+ 0.22	+ 1.40	− 3 16 59.6	1 11.9	− 0.7
	29 h Herculis .		47 41.5	25 1.60	2 27.43	− 0.80	− 2.62	+ 11 56 48.2	0 42.1	− 2.0
c)		7	52 54.5	30 15.46	2 27.42	+ 0.61	+ 1.84	− 9 6 24.8	1 29.0	− 0.4
	14 Ophiuchi .	6	55 52.2	33 13.65	2 27.42	− 0.11	− 0.03	+ 1 35 47.0	1 0.4	− 1.0
	41 Herculis .	6	11 59 36.2	36 58.26	2 27.42	0.43	− 1.04	+ 6 30 2.0	0 51.0	− 1.6
d)	45 e " . .		12 2 14.7	39 37.19	2 27.42	0.38	− 0.84	+ 5 37 59.5	0 52.5	− 1.5
	21 Serpentis .		5 32.7	42 55.73	2 27.42	0.11	− 0.02	+ 1 35 8.2	1 0.4	− 1.0
	49 Herculis .		7 21.1	44 44.43	2 27.42	1.04	− 1.54	+ 15 19 49.8	0 37.1	− 1.9
	54 " . .		10 58.8	48 22.73	2 27.41	1.29	− 1.33	+ 18 46 9.2	32.5	− 1.3
		7.8	12 36.2	50 0.39	2 27.41	1.28	− 1.34	+ 18 33 44.6	32.7	− 1.4
		6.7	16 56.6	54 21.50	2 27.41	1.61	− 0.86	+ 22 56 22.7	27.2	− 0.2
	60 " . .		20 26.3	16 57 51.77	2 27.41	0.88	− 1.79	+ 13 1 54.6	40.5	− 2.0
	62 " . .	7.8	24 41.4	17 2 7.57	2 27.41	1.75	− 0.45	+ 24 45 17.0	25.1	+ 0.3
		7	27 10.0	4 36.58	2 27.41	1.73	− 0.53	+ 24 29 19.4	25.4	+ 0.1
	64 a " . .		29 51.4	7 18.42	2 27.40	− 0.99	− 1.60	+ 14 37 47.4	0 38.1	− 2.0
		8	33 54.8	11 22.49	2 27.40	+ 0.01	+ 0.39	− 0 6 0.0	1 4.2	− 0.8
	70 " . .		37 1.6	14 29.80	2 27.40	− 1.75	− 0.47	+ 24 42 9.0	0 25.1	+ 0.3
	73 " . .		40 6.0	17 34.70	2 27.40	1.62	− 0.83	+ 23 9 0.2	27.0	− 0.2
	54 Ophiuchi .		49 25.6	26 55.83	2 27.39	0.90	− 1.75	+ 13 18 5.0	40.1	− 2.0
	55 a " . .		49 54.4	27 24.71	2 27.39	0.86	− 1.87	+ 12 42 40.9	40.9	− 2.0
e)		7.8	55 51.7	33 22.99	2 27.39	4.32	+ 3.18			
	82 y Herculis .	7	55 58.0	33 29.32	2 27.39	4.32	+ 3.18	+ 48 41 2.8	0.2	+ 5.6
	85 ι " . .		12 58 20.8	35 52.51	2 27.39	3.94	+ 2.43	+ 46 5 45.7	2.7	+ 5.3
	62 γ Ophiuchi .		13 1 59.2	39 31.51	2 27.39	0.18	− 0.25	+ 2 47 19.9	58.1	− 1.2
	87 Herculis .		5 0.4	42 33.21	2 27.39	1.83	− 0.20	+ 25 40 49.4	24.0	+ 0.6
	89 " . .		11 38.0	49 11.90	2 27.38	1.86	− 0.09	+ 26 4 15.0	23.6	+ 0.7
	92 " . .		13 14 17.0	17 51 51.33	− 2 27.38	− 2.13	+ 1.06	+ 29 15 21.0	− 0 20.0	+ 1.6

a T. III assumed as 47s.7; not 37s.7.
b ζ assumed as 74° 45′ 41″; not 74° 45′ 31″.
c ζ assumed as 61° 13′ 2″; not 61° 13′ 1″.
d ζ assumed as 46° 1′ 9″; not 46° 1′ 8″.
e ζ assumed as that of a star differing 7′ from 82 y Herculis.

1783 MAY 31—Continued Zero corr. = + 1′ 45″.4.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
95 Herculis		13 17 15.4	17 54 50.22	− 2 27.38	− 1.50	− 1.07	+ 21 35 5.8	− 0 29.0	− 0.6
a) 98 "		21 50.6	17 59 26.17	2 27.38	1.55	− 0.99	+ 22 11 12.4	28.2	− 0.5
104 A "		28 38.6	18 6 15.29	2 27.37	2.31	+ 1.34	+ 31 20 2.0	17.7	+ 2.3
	8	34 27.9	12 5.55	2 27.37	1.72	− 0.56	+ 24 20 34.0	25.6	+ 0.1
105 "		35 9.0	12 46.76	2 27.37	1.72	− 0.56	+ 24 20 30.0	25.6	+ 0.1
	6	37 59.4	15 37.63	2 27.37	1.63	− 0.82	+ 23 9 44.3	27.0	− 0.2
	7	41 13.5	18 52.26	2 27.37	1.96	+ 0.30	+ 27 15 39.2	22.2	+ 1.0
	8	47 22.3	25 2.07	2 27.36	3.97	+ 2.48	+ 46 15 12.9	2.5	+ 5.3
	7.8	50 27.3	28 7.58	2 27.36	3.04	+ 1.27	+ 38 39 14.2	10.2	+ 3.8
	7	52 56.6	30 37.29	2 27.36	3.04	+ 1.28	+ 38 41 47.0	10.2	+ 3.8
3 α Lyræ		54 26.0	32 6.93	2 27.36	3.03	+ 1.27	+ 38 33 38.0	10.3	+ 3.8
	7	13 57 40.9	35 22.36	2 27.36	− 2.98	+ 1.27	+ 38 8 35.1	0 10.6	+ 3.7
	6.7	14 3 40.7	41 23.15	2 27.36	+ 1.92	+ 3.60	− 26 51 16.2	3 36.2	− 3.2
b) 34 σ Sagittarii		6 30.0	44 12.91	2 27.36	1.89	+ 3.42	− 26 31 9.0	3 31.4	− 2.9
	7	10 3.3	47 46.79	2 27.35	1.59	+ 1.80	− 22 46 58.2	2 47.3	− 1.5
Saturn		13 37.2	51 21.28	2 27.35	1.56	+ 1.68	− 22 20 3.6	2 43.1	− 1.3
40 τ Sagittarii		18 2.8	55 47.61	2 27.35	2.02	+ 4.04	− 27 55 53.4	3 53.8	− 3.8
41 π "	5.6	21 32.7	18 59 18.08	2 27.35	1.48	+ 1.51	− 21 20 8.9	2 34.5	− 1.0
	6	25 48.5	19 3 34.58	2 27.35	+ 0.85	+ 1.61	− 12 37 51.7	1 43.2	− 0.3
22 Aquilæ		30 30.3	8 17.15	2 27.34	− 0.30	− 0.56	+ 4 27 3.6	0 55.0	− 1.3
c)	6.7	33 16.4	11 3.70	2 27.34	0.62	− 1.76	+ 9 13 12.6	46.6	− 1.8
3 Vulpeculæ	6	38 40.7	16 28.89	2 27.34	1.84	− 0.15	+ 25 49 54.0	23.8	+ 0.6
	7	41 10.2	18 58.80	2 27.34	1.73	− 0.52	+ 24 30 25.5	25.5	+ 0.2
6 "	6	44 23.3	22 12.43	2 27.34	1.71	− 0.59	+ 24 12 44.6	25.8	0.0
8 "	7	44 36.2	22 25.37	2 27.34	1.72	− 0.57	+ 24 18 35.0	25.7	+ 0.1
8 Cygni		48 23.3	26 13.09	2 27.34	2.56	+ 1.39	+ 33 58 23.0	15.0	+ 2.9
	7.8	51 50.8	29 41.16	2 27.33	3.35	+ 1.38	+ 41 25 39.0	7.3	+ 4.3
	6	54 35.1	32 25.91	2 27.33	3.69	+ 1.72	+ 44 11 18.9	4.6	+ 4.9
d)	7	56 34.1	34 25.24	2 27.33	4.32	+ 3.20	+ 48 45 13.0	0.1	+ 5.6
	6	14 58 47.4	36 38.91	2 27.33	3.80	+ 1.98	+ 44 59 3.3	3.8	+ 5.1
	6	15 1 10.0	39 1.90	2 27.33	3.34	+ 1.37	+ 41 13 40.4	7.5	+ 4.3
	6.7	4 24.4	42 16.83	2 27.33	2.95	+ 1.27	+ 37 50 53.2	11.0	+ 3.7
	7	6 25.0	44 17.76	2 27.33	2.98	+ 1.27	+ 38 8 31.3	10.6	+ 3.7
19 "	6	7 30.7	45 23.64	2 27.32	2.98	+ 1.27	+ 38 8 31.4	10.6	+ 3.7
	6	11 29.8	49 23.39	2 27.32	2.80	+ 1.30	+ 36 24 6.9	12.4	+ 3.3
e) 22 "	6.7	14 19.8	52 13.86	2 27.32	2.96	+ 1.27	+ 37 51 6.8	11.0	+ 3.7
	6	17 8.0	55 2.52	2 27.32	3.81	+ 2.05	+ 45 9 10.3	3.6	+ 5.1
f) 26 "	4.5	19 48.4	19 57 43.36	2 27.32	4.44	+ 3.32	+ 49 28 28.1	0.6	+ 5.6
27 b^1 Cygni		22 52.8	20 0 48.26	2 27.32	2.69	+ 1.31	+ 35 21 14.5	13.5	+ 3.1
28 b^2 "	5.6	25 56.7	3 52.66	2 27.32	2.78	+ 1.30	+ 36 10 46.4	12.7	+ 3.3
22 Vulpeculæ		30 42.8	8 39.54	2 27.31	− 1.60	− 0.88	+ 22 49 53.6	0 27.5	− 0.2
11 ρ Capricorni	3.4	40 56.2	18 54.62	2 27.31	+ 1.27	+ 1.49	− 18 30 26.4	2 14.1	− 0.7
Jupiter		42 49.2	20 47.93	2 27.31	+ 1.39	+ 1.41	− 20 3 40.0	2 24.8	− 0.8
2 ε Delphini		47 24.3	25 23.78	2 27.30	− 0.71	− 2.66	+ 10 33 30.2	0 44.6	− 1.9
9 α "		54 4.6	32 5.18	2 27.30	1.03	− 1.56	+ 15 8 14.2	37.7	− 1.9
α Cygni		15 58 31.7	36 33.01	2 27.30	3.73	+ 1.79	+ 44 28 39.2	4.3	+ 5.0
53 ε "		16 1 54.6	20 39 56.47	− 2 27.30	− 2.48	+ 1.40	+ 33 8 15.6	− 0 15.9	+ 2.7

1783 JUNE 2 Zero corr. = + 1′ 47″.7.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
94 β Leonis	2	6 56 4.0	11 40 29.32	− 2 26.20	− 1.03	− 1.51	+ 15 45 45.4	− 0 36.5	− 1.8
5 β Virginis							+ 2 58 13.0	0 57.6	− 1.2
4 γ Corvi		7 22 35.6	12 7 5.28	2 26.19	+ 1.07	+ 1.67	− 16 20 15.6	2 0.3	− 0.5
16 α Comæ		34 4.8	18 36.37	2 26.18	− 1.94	+ 0.58	+ 28 0 14.4	0 21.3	+ 1.3
8 Can. Ven.		41 21.8	25 54.57	2 26.18	3.35	+ 1.47	+ 42 30 35.5	6.2	+ 4.6
27 Comæ		7 53 43.7	38 18.50	2 26.17	1.16	− 1.40	+ 17 44 35.0	33.8	− 1.6
41 Virginis		8 0 51.3	45 27.27	2 26.16	0.88	− 1.70	+ 13 34 48.4	39.6	− 2.0
Cor. Caroli.		3 43.3	12 48 19.74	2 26.16	3.01	+ 1.29	+ 39 27 43.0	9.2	+ 4.0
42 Comæ		17 17.1	13 1 56.37	2 26.16	1.23	− 1.33	+ 18 39 30.5	32.7	− 1.4
15 Can. Ven.		17 55.4	2 34.17	2 26.16	− 3.02	+ 1.29	+ 39 37 40.8	0 9.1	+ 4.0
66 Virginis		8 31 2.2	13 15 43.13	− 2 26.15	+ 0.26	+ 1.58	− 4 2 18.8	− 1 13.9	− 0.6

a T. III assumed as 22m.; not 21m.
b Div. assumed as 80 6 5; not 80 6 4.
c Div. assumed as 42 4 6; not 42 4 2.
d ξ assumed as 0° 5′; not 0° 6′.
e T. II assumed as 19s.5; not 9s.5: and name not 22 Cygni.
f ξ assumed as 89° 22′ 37″; not 89° 22′ 47″.

1783 JUNE 2—Continued Zero corr. = + 1′ 47″.7.

	Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	67 α Virginis .		8 31 31.7	13 16 12.71	— 2 26.15	+ 0.64	+ 1.79	— 10 1 53.5	— 1 32.4	— 0.4
	542 Mayer . .	7	35 53.4	20 35.13	2 26.15	+ 0.02	+ 0.45	— 0 14 51.0	4.5	— 0.8
		7.8	40 58.8	25 41.37	2 26.15	— 0.05	+ 0.14	+ 0 47 15.8	2.3	— 0.9
		7.8	42 55.7	27 38.59	2 26.15	0.01	+ 0.30	+ 0 10 16.0	1 3.6	— 0.8
a)		7.8	49 20.4	34 4.23	2 26.14	3.96	+ 2.85	+ 47 21 14.0	0 1.5	+ 5.4
		7	52 11.5	36 55.91	2 26.14	3.87	+ 2.60	+ 46 35 11.2	2.2	+ 5.4
		6	54 45.8	39 30.63	2 26.14	3.30	+ 1.44	+ 42 4 8.8	6.6	+ 4.5
		7.8	57 21.2	42 6.45	2 26.14	3.44	+ 1.57	+ 43 23 52.2	5.3	+ 4.8
		7	8 56 41.5	41 26.64	2 26.14	3.40	+ 1.53	+ 43 6 35.0	5.6	+ 4.7
		6.7	9 3 57.1	48 43.33	2 26.14	2.08	+ 1.14	+ 29 42 50.5	19.5	+ 1.8
		7	6 50.2	51 37.00	2 26.13	— 1.85	+ 0.14	+ 26 51 4.8	0 22.6	+ 1.0
	5 θ Centauri .		11 31.0	13 56 18.57	2 26.13	+ 2.58	+ 5.50	— 35 11 31.2	8 5.6	—10.3
	562 Mayer . .	6	16 38.7	14 1 27.11	2 26.13	+ 1.00	+ 1.62	— 15 16 12.0	1 54.9	— 0.5
		7	22 18.8	7 8.14	2 26.13	— 1.54	— 0.88	+ 22 52 9.2	0 27.4	— 0.2
	Arcturus .		23 27.6	8 17.13	2 26.13	— 1.35	— 1.21	+ 20 17 44.9	0 30.6	— 1.1
	569 Mayer . .	7	9 28 46.7	14 13 37.10	— 2 26.12	+ 0.43	+ 1.87	— 6 46 21.8	— 1 21.7	— 0.5

1783 JUNE 3 Zero corr. = + 1′ 47″.0.

	Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
b)	94 β Leonis. .	2	6 52 7.4	11 40 28.63	— 2 25.55	— 1.02	— 1.51	+ 15 45 47.1	— 0 36.4	— 1.8
	23 κ Comæ . .		7 38 1.8	12 26 30.57	2 25.53	— 1.58	— 0.70	+ 23 48 10.1	0 26.2	0.0
c)	29 γ Virginis .		44 37.4	33 7.25	2 25.52	+ 0.02	+ 0.45	— 0 16 15.2	1 4.6	— 0.8
d)	27 Comæ . .		49 47.4	38 18.10	2 25.52	— 1.15	— 1.41	+ 17 44 36.8	0 33.7	— 1.5
	Cor. Caroli.		7 59 47.3	48 19.64	2 25.51	2.96	+ 1.29	+ 39 27 59.2	9.2	+ 4.0
	37 Comæ . .		8 3 48.4	52 21.40	2 25.51	2.25	+ 1.38	+ 31 55 58.2	17.0	+ 2.5
e)	14 Can. Ven.		9 29.9	58 3.84	2 25.51	2.71	+ 1.28	+ 36 56 8.0	11.8	+ 3.5
	40 Comæ . .		9 43.8	12 58 17.77	2 25.51	1.58	— 0.71	+ 23 45 36.1	26.2	0.0
	17 Can. Ven.		13 58.6	13 2 33.27	2 25.51	2.98	+ 1.29	+ 39 37 41.6	9.1	+ 4.0
	64 Virginis .		25 6.4	13 42.90	2 25.50	— 0.40	— 0.99	+ 6 16 44.8	0 51.2	— 1.5
	67 α " . .		8 27 35.2	16 12.11	2 25.50	+ 0.64	+ 1.79	— 10 1 54.5	1 32.4	— 0.4
		7	9 8 36.5	13 57 20.15	2 25.48	— 1.82	+ 0.14	+ 26 50 43.4	0 22.7	+ 1.0
	Arcturus .		9 19 31.0	14 8 16.44	2 25.47	— 1.33	— 1.21	+ 20 17 45.0	0 30.6	— 1.1
	12 Ophiuchi .		11 38 17.2	16 27 25.44	2 25.40	+ 0.11	+ 1.02	— 1 51 37.0	1 8.9	— 0.7
			46 28.8	35 38.39	2 25.40	— 1.45	— 1.01	+ 21 59 37.0	0 28.6	— 0.5
			46 48.9	35 58.55	2 25.40	1.45	— 1.01	+ 22 3		
		6	51 43.7	40 54.16	2 25.39	3.43	+ 1.60	+ 43 35 28.0	5.2	+ 4.8
	50 Herculis .	6	55 29.5	44 40.58	2 25.39	2.09	+ 1.21	+ 30 9 32.0	19.1	+ 1.9
		6	11 59 59.2	49 11.02	2 25.39	3.37	+ 1.54	+ 43 10 20.4	5.6	+ 4.7
		7	12 4 17.8	53 30.33	2 25.39	2.34	+ 1.50	+ 42 49 24.2	6.0	+ 4.7
	59 d " . .	7.8	6 52.2	16 56 5.15	2 25.39	2.41	+ 1.39	+ 33 51 48.0	15.2	+ 2.9
	67 π " . .		20 44.0	17 9 59.23	2 25.38	2.72	+ 1.27	+ 37 1 55.5	11.9	+ 3.5
	69 " . .	6.7	12 23 26.0	17 12 41.67	— 2 25.38	— 2.76	+ 1.27	+ 37 29 43.6	— 0 11.4	+ 3.6

1783 JULY 5 Zero corr. = + 1′ 45″.3.

	Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	67 α Virginis .	1	6 21 31.2	13 15 57.29	— 2 10.53	+ 0.66	+ 1.79	— 10 1 55.1	— 1 30.5	— 0.4
	Arcturus .		7 13 27.0	14 8 1.62	2 10.49	— 1.39	— 1.21	+ 20 17 47.2	0 29.9	— 1.1
	11 κ Cor. Bor. .		8 50 27.6	15 45 18.16	2 10.41	2.76	+ 1.30	+ 36 18 46.0	12.2	+ 3.3
	41 γ Serpentis .		53 51.2	48 42.32	2 10.40	1.10	— 1.47	+ 16 21 34.8	35.1	— 1.8
	12 λ Cor. Bor. .		55 17.6	50 8.95	2 10.40	2.99	+ 1.27	+ 38 33 18.0	10.0	+ 3.8
		7	8 58 12.3	53 4.13	2 10.40	0.92	— 1.67	+ 13 52 36.0	38.5	— 2.0
		6	9 1 28.7	56 21.07	2 10.40	1.24	— 1.35	+ 18 23 19.4	32.4	— 1.5
		6.7	4 50.1	15 59 43.02	2 10.39	3.11	+ 1.30	+ 39 43 23.8	8.8	+ 4.0
		7	8 34.2	16 3 27.73	2 10.39	3.88	+ 2.36	+ 45 55 56.1	2.8	+ 5.3
		8	9 29.6	4 23.28	2 10.39	3.88	+ 2.35	+ 45 53 57.0	2.8	+ 5.3
		6 7	11 57.9	6 51.99	2 10.39	3.49	+ 1.51	+ 42 54 38.6	5.7	+ 4.7
f)		8	15 17.7	10 12.34	2 10.38	2.83	+ 1.27	+ 37 4 33.8	11.5	+ 3.5
		6	18 0.2	12 55.28	2 10.38	— 1.49	— 1.06	+ 21 38 40.0	0 28.3	— 0.6
	5 g Ophiuchi .	3.4	9 19 50.3	16 14 45.68	— 2 10.38	+ 1.59	+ 1.84	— 22 54 58.4	— 2 44.5	— 1.5

a T. I rejected.
b T. III assumed as 31s.; not 11s.
c ζ assumed as 49° 7′; not 49° 2′.
d Div. assumed as 33; not 32.
e T II assumed as 9m. 29s.5; not 9m. 39s.5.
f T. I assumed as 14m.; not 15m.

1783 JULY 5—Continued Zero corr. = + 1′ 45″. 3.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	Antares .		9 23 20.8	16 18 16.76	— 2 10.38	+ 1.83	+ 3.12	— 25 54 39.0	— 3 18.2	— 2.6
	23 τ Scorpii .		9 29 35.2	16 24 32.17	2 10.37	1.97	+ 3.95	— 27 43 2.0	3 44.9	— 3.6
	Saturn .		11 45 24.2	18 40 43.49	2 10.26	1.56	+ 1.74	— 22 33 22.4	2 42.3	— 1.4
	34 Sagittarii .							— 26 31 2.2	3 28.6	— 2.9
	38 ζ " . .		55 33.7	50 54.66	2 10.25	2.17	+ 4.88	— 30 7 17.6	4 34.1	— 5.5
	39 ο " . .		11 58 29.2	18 53 50.64	2 10.25	1.52	+ 1.63	— 22 1 29.2	2 37.7	— 1.2
	767 Mayer . .		12 6 17.5	19 1 40.22	2 10.24	1.52	+ 1.62	— 21 59 2.6	2 37.4	— 1.2
	42 ψ Sagittarii .		8 59.3	4 22.46	2 10.24	1.80	+ 2.95	— 25 35 7.6	3 15.2	— 2.4
		7	12 0.6	7 24.26	2 10.24	1.10	+ 1.67	— 16 19 50.9	1 58.9	— 0.5
	46 υ " . .		16 4.1	11 28.43	2 10.23	1.10	+ 1.67	— 16 20 26.2	59.2	— 0.5
		6	24 25.6	19 51.30	2 10.23	+ 0.49	+ 1.88	— 7 28 46.5	1 22.7	— 0.5
		8	29 25.4	24 51.92	2 10.22	— 1.40	— 1.19	+ 20 27 39.6	0 29.9	— 1.0
		7.8	31 50.8	27 17.72	2 10.22	1.80	— 0.22	+ 25 34 41.6	23.8	+ 0.6
		6.7	35 39.4	31 6.95	2 10.22	1.39	— 1.21	+ 20 17 4.2	30.1	— 1.1
a)		7	37 47.3	33 15.20	2 10.22	1.36	— 1.23	+ 19 57 56.5	30.5	— 1.1
b)		7.8	40 53.2	36 21.61	2 10.21	1.51	— 1.01	+ 21 58 5.8	28.0	— 0.5
	53 α Aquilæ .		46 57.2	42 26.61	2 10.21	0.55	— 1.44	+ 8 17 34.1	47.3	— 1.7
	60 β " . .		51 23.3	46 53.44	2 10.20	0.38	— 0.90	+ 5 51 47.2	51.5	— 1.5
	13 χ Sagittæ .		12 57 0.0	52 31.06	2 10.20	1.14	— 1.44	+ 16 55 1.5	34.5	— 1.7
		7.8	13 0 1.0	55 32.56	2 10.19	1.19	— 1.41	+ 17 40 52.0	33.5	— 1.6
		7	0 16.1	55 47.70	2 10.19	1.21	— 1.40	+ 17 53 5.0	33.2	— 1.5
	16 ε " . .		2 15.6	57 47.53	2 10.19	1.32	— 1.28	+ 19 21 34.5	31.3	— 1.3
	17 Vulpeculæ	6	4 17.1	19 59 49.36	2 10.19	— 1.59	— 0.85	+ 22 58 41.4	0 26.9	— 0.2
	Jupiter .		13 13 0.7	20 8 34.39	— 2 10.18	+ 1.42	+ 1.47	— 20 47 40.2	— 2 28.1	— 0.9

1783 JULY 8 Zero corr. = + 1′ 47″. 0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	Arcturus .	1	7 1 35.7	14 7 58.04	— 2 6.73	— 1.43	— 1.21	+ 20 17 45.2	— 0 29.8	— 1.1
	27 γ Boötis . .		19 5.7	25 30.91	2 6.70	3.15	+ 1.28	+ 39 14 16.3	9.3	+ 3.9
	30 ζ " . .		26 32.7	32 59.13	2 6.69	1.01	— 1.60	+ 14 38 49.8	37.2	— 1.9
	36 ε " . .		31 13.6	37 40.80	2 6.69	— 2.05	+ 0.57	+ 27 58 22.2	0 20.9	+ 1.3
c)	20 γ Libræ . .		46 59.3	53 29.09	2 6.68	+ 1.74	+ 2.37	— 24 24 1.2	2 59.2	— 2.0
	42 β Boötis . .		49 27.3	14 55 57.50	2 6.68	— 3.38	+ 1.38	+ 41 13 33.9	0 7.4	+ 4.3
d)	24 ι Libræ . .		7 55 27.7	15 1 58.87	2 6.67	+ 1.32	+ 1.48	— 18 57 18.0	2 13.2	— 0.7
	27 β " . .		8 0 56.2	7 28.28	2 6.66	+ 0.58	+ 1.87	— 8 34 49.2	1 25.6	— 0.4
	49 δ Boötis . .		2 23.4	8 55.72	2 6.66	— 2.60	+ 1.38	+ 34 6 22.7	0 14.4	+ 2.9
	31 ε Libræ . .							— 9 32 18.6	1 28.8	— 0.4
	5 α Cor. Bor. .	2.3	21 5.7	27 41.09	2 6.64	— 1.99	+ 0.36	+ 27 25 46.4	0 21.5	+ 1.1
	44 η Libræ . .		27 23.8	34 0.23	2 6.63	+ 1.03	+ 1.60	— 14 58 13.2	1 51.0	— 0.5
	24 α Serpentis .		29 9.8	35 46.52	2 6.63	— 0.48	— 1.17	+ 7 6 6.5	0 48.9	— 1.6
e)	28 β " . .							+ 16 5 29.4	0 35.3	— 1.8
f)	46 θ Libræ . .		36 58.5	43 36.50	2 6.62	+ 1.11	+ 1.66	— 16 4 45.0	1 56.5	— 0.5
	5 ρ Scorpii .							— 28 31 56.5	3 58.7	— 4.2
	6 π " . .		41 11.3	47 49.99	2 6.62	+ 1.83	+ 2.88	— 25 27 14.6	3 11.9	— 2.3
		7	47 19.7	53 59.40	2 6.62	— 0.96	— 1.66	+ 13 56		
		6	49 37.4	56 17.48	2 6.61	1.28	— 1.33	+ 18 23 19.4	0 32.3	— 1.5
		6.7	52 59.0	15 59 39.63	2 6.61	3.19	+ 1.30	+ 39 43 24.0	8.8	+ 4.1
		7.8	56 42.9	16 3 24.14	2 6.61	3.98	+ 2.36	+ 45 55 54.1	2.8	+ 5.3
g)		9.10	8 57 38.1	4 19.46	2 6.60	3.98	+ 2.35	+ 45 53 57.0	2.8	+ 5.3
		6	9 0 6.6	6 48.39	2 6.60	3.58	+ 1.51	+ 42 54 37.1	5.7	+ 4.7
		7.8	3 26.6	10 8.94	2 6.60	2.90	+ 1.27	+ 37 4 31.8	11.5	+ 3.5
		9.10	4 20.3	11 2.79	2 6.60	2.90	+ 1.27	+ 37 1 51.0	11.5	+ 3.5
		5.6						+ 21 38 41.2	28.3	— 0.6
	20 γ Herculis .		7 49.1	14 32.16	2 6.59	— 1.38	— 1.26	+ 19 39 6.6	0 30.7	— 1.2
	Antares .		11 28.7	18 12.36	2 6.59	+ 1.87	+ 3.12	— 25 54 45.0	3 17.8	— 2.6
	23 τ Scorpii .		17 43.2	24 27.88	2 6.58	2.02	+ 3.95	— 27 43 10.9	3 44.9	— 3.6
h)		7	22 46.0	29 31.67	2 6.58	+ 0.05	+ 0.66	— 0 47 49.0	1 4.6	— 0.7
	40 ζ Herculis .		28 31.2	35 17.65	2 6.57	— 2.40	+ 1.38	+ 31 58 45.8	0 16.7	+ 2.5
	44 η " . .		9 30 52.2	16 37 39.04	2 6.57	3.16	+ 1.28	+ 39 18 59.7	9.3	— 3.9
	103 " . .		10 54 14.9	18 1 15.44	2 6.49	2.11	+ 0.86	+ 28 43 7.4	20.1	+ 1.5
		6.7	11 4 42.9	18 11 45.16	— 2 6.48	— 1.74	— 0.56	+ 24 20 39.0	—0 25.1	+ 0.1

a Div. assumed as 30 12 15; not 30 12 14.
b ζ assumed as 26° 53′ 4″.5; not 26° 53′ 24″.5.
c ζ assumed as 73° 15′ 6″; not 73° 15′ 16″.
d T II assumed as 55m.; not 57m.
e ζ assumed as 32° 45′ 38″; not 32° 45′ 28″.
f Div. assumed as 69 4 7; not 69 4 2.
g T. II assumed as 57m. 38s.; not 57m. 28s.
h Min. assumed as 22m.; not 23m.

1783 JULY 8—Continued Zero corr. = + 1′ 47″.0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	105 Herculis		11 5 24.2	18 12 26.57	− 2 6.48	− 1.74	− 0.56	+ 24 20 37.2	− 0 25.1	+ 0.1
	107 t "		7 41.2	14 43.95	2 6.47	2.12	+ 0.87	+ 28 45 8.4	20.1	+ 1.6
	109 "		9 36.2	16 39.27	2 6.47	1.53	− 1.06	+ 21 39 37.8	28.3	− 0.6
	2 μ Lyræ		12 13.2	19 16.70	2 6.47	3.16	+ 1.29	+ 39 22 9.4	9.2	+ 3.9
		8	16 59.7	24 3.98	2 6.46	3.72	+ 1.70	+ 44 5 35.8	4.6	+ 4.9
		7.8	20 42.3	27 47.19	2 6.46	3.08	+ 1.27	+ 38 39 21.0	9.9	+ 3.8
		9	23 12.1	30 17.40	2 6.46	3.08	+ 1.28	+ 38 41 56.5	9.9	+ 3.8
	3 α Lyræ		24 41.3	31 46.84	2 6.46	− 3.07	+ 1.27	+ 38 33 48.9	0 10.0	+ 3.8
	Saturn		32 36.8	39 43.64	2 6.45	+ 1.61	+ 1.74	− 22 34 36.2	2 41.9	− 1.4
a)	35 ν² Sagittarii		36 58.5	44 6.06	2 6.44	1.63	+ 1.83	− 22 54 29.8	2 44.9	− 1.5
b)	38 ζ "		43 42.0	50 50.67	2 6.44	2.23	+ 4.89	− 30 7 27.2	4 33.5	− 5.5
c)	40 τ "		48 17.4	55 26.82	2 6.43	2.04	+ 4.04	− 27 56 3.2	3 48.9	− 3.8
	41 π "		11 51 48.3	18 58 58.30	2 6.43	+ 1.50	+ 1.51	− 21 20 20.6	2 31.2	− 1.0
		8	12 23 47.7	19 31 2.96	2 6.40	− 1.42	− 1.21	+ 20 16 58.9	0 30.0	− 1.1
		8.9	25 55.5	33 11.11	2 6.40	1.40	− 1.23	+ 19 57 53.6	30.4	− 1.1
		8.9	29 1.4	36 17.52	2 6.39	1.55	− 1.01	+ 21 58 5.0	27.9	− 0.5
	53 α Aquilæ		35 5.8	42 22.92	2 6.39	0.56	− 1.44	+ 8 17 29.5	47.2	− 1.7
d)	60 β "		39 31.8	46 49.65	2 6.38	0.39	− 0.90	+ 5 51 44.2	51.4	− 1.5
e)	11 Sagittæ	7	42 48.0	50 6.39	2 6.38	1.13	− 1.48	+ 16 11 45.4	35.4	− 1.8
	13 χ "	6.7	45 8.3	52 27.07	2 6.38	1.17	− 1.44	+ 16 54 55.0	34.4	− 1.7
		7.8	48 9.8	55 29.07	2 6.37	1.22	− 1.41	+ 17 40 49.0	33.4	− 1.6
		7	48 25.1	55 44.41	2 6.37	1.25	− 1.40	+ 17 53 7.2	33.1	− 1.5
	16 η "	6	50 24.1	19 57 43.74	2 6.37	− 1.35	− 1.28	+ 19 21 33.0	0 31.3	− 1.3
	2 ξ Capricorni	7	55 6.6	20 2 27.01	2 6.37	+ 0.91	+ 1.58	− 13 14 18.9	1 43.7	− 0.3
	Jupiter		12 59 38.5	20 6 59.66	− 2 6.36	+ 1.47	+ 1.47	− 20 52 47.6	− 2 28.1	− 1.0

1783 JULY 9 Zero corr. = + 1′ 46″.0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	27 β Libræ	2	7 56 58.4	15 7 26.40	− 2 4.93	+ 0.59	+ 1.87	− 8 34 50.0	− 1 25.4	− 0.4
	41 ε "		8 4 3.7	14 32.86	2 4.93	+ 0.66	+ 1.82	− 9 32 17.8	1 28.6	− 0.4
f)	3 β Cor. Bor.		10 32.0	21 2.22	2 4.92	− 2.24	+ 1.17	+ 29 50 15.6	0 18.8	+ 1.9
	5 α " "		17 8.4	27 39.70	2 4.91	2.02	+ 0.36	+ 27 25 47.6	21.5	+ 1.1
	24 α Serpentis		25 12.3	35 44.92	2 4.90	0.49	− 1.17	+ 7 6 5.0	48.7	− 1.6
	28 β "		27 48.4	38 21.45	2 4.90	− 1.12	− 1.49	+ 16 5 28.0	0 35.2	− 1.8
	32 μ "		29 51.5	40 24.89	2 4.90	+ 0.19	+ 1.28	− 2 46 1.2	1 8.9	− 0.7
	37 ε "		31 35.9	42 9.58	2 4.90	− 0.35	− 0.69	+ 5 7 34.0	0 52.3	− 1.4
	5 ρ Scorpii		34 58.8	45 33.04	2 4.89	+ 2.12	+ 4.28	− 28 32 0.8	3 58.7	− 4.2
	6 π "		37 13.8	47 48.41	2 4.89	1.85	+ 2.88	− 25 27 17.3	3 12.1	− 2.4
g)	8 β "	2	44 20.2	15 54 55.98	2 4.89	1.36	+ 1.42	− 19 11 35.1	2 15.1	− 0.7
	10 ω² "							− 20 15 42.2	2 22.3	− 0.8
	12 c¹ "		50 18.4	16 0 55.16	2 4.88	2.05	+ 4.00	− 27 48 27.0	3 45.8	− 3.6
	13 c² "		50 23.1	0 59.87	2 4.88	2.02	+ 3.77	− 27 19 14.9	37.9	− 3.4
h)	640 Mayer		53 12.4	3 49.63	2 4.88	1.81	+ 2.58	− 24 53 30.8	5.4	− 2.2
	20 σ Scorpii		8 59 26.5	10 4.75	2 4.87	1.82	+ 2.63	− 25 2 14.8	3 6.9	− 2.2
	4 ψ Ophiuchi		9 2 52.2	13 31.01	2 4.86	1.38	+ 1.40	− 19 30 34.0	2 17.2	− 0.8
	7 χ "		5 54.1	16 33.41	2 4.86	1.26	+ 1.54	− 17 56 47.9	2 7.2	− 0.6
	Antares		7 31.2	18 10.78	2 4.86	1.90	+ 3.11	− 25 54 43.4	3 17.9	− 2.6
	649 Mayer	7	9 28.4	20 8.30	2 4.86	1.90	+ 3.16	− 26 1 32.9	19.7	− 2.6
	23 τ Scorpii		13 45.3	24 25.90	2 4.86	2.05	+ 3.95	− 27 43 12.4	3 44.6	− 3.5
	653 Mayer	8	17 18.6	27 59.78	2 4.85	1.25	+ 1.57	− 17 45 58.6	2 6.1	− 0.6
	655 "	7.8	20 7.6	30 49.24	2 4.85	1.24	+ 1.58	− 17 37 5.4	5.5	− 0.6
	24 Scorpii	6	20 26.1	31 7.79	2 4.85	+ 1.22	+ 1.62	− 17 18 20.0	2 3.5	− 0.5
i)	51 Herculis		9 34 11.7	16 44 55.65	2 4.85	− 1.82	− 0.38	+ 25 0 33.9	0 24.3	+ 0.4
	4 ε Sagittæ		12 18 27.1	19 29 38.03	2 4.67	1.12	− 1.49	+ 15 58 4.8	36.0	− 1.8
		7	20 35.6	31 46.87	2 4.67	1.12	− 1.49	+ 16 4 0.7	35.8	− 1.8
j)	6 β "		22 16.9	33 28.45	2 4.67	1.19	− 1.43	+ 16 57 55.2	34.6	− 1.7
		8	25 4.6	36 16.61	2 4.66	1.57	− 1.01	+ 21 58 4.6	28.3	− 0.5
		8	28 30.3	39 42.87	2 4.66	1.79	− 0.50	+ 24 35 22.2	25.1	+ 0.3
		7	29 40.1	40 52.88	2 4.66	1.80	− 0.42	+ 24 50 10.0	24.8	+ 0.3
	53 α Aquilæ		31 8.4	42 21.43	2 4.66	0.57	− 1.44	+ 8 17 32.4	− 0 47.7	− 1.7
		6	12 35 0.1	19 46 13.77	− 2 4.65	− 0.45	− 1.07	+ 6 34		

a ζ assumed as 71° 45′ 34″.5; not 71° 45′ 44″.5.
b ζ assumed as 78° 58′ 31″; not 78° 58′ 41″.
c ζ assumed as 76° 47′ 8″; not 76° 47′ 18″.
d ζ assumed as 42° 59′ 20″.5; not 42° 59′ 50″.5.
e T. III assumed as 43m.; not 42m.
f ζ assumed as 19° 0′ 48″; not 29° 0′ 18″.
g T. I assumed as 56s.; not 51s.
h ζ assumed as 73° 44′ 36″.5; not 73° 44′ 46″.5.
i Micr. corr. assumed as + 5; not − 5.
j Div. assumed as 34 0 3; not 34 0 4.

1783 JULY 9—Continued Zero corr. = + 1′ 46″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
60 β Aquilæ		12 35 34.7	19 46 48.46	— 2 4.65	— 0.40	— 0.90	+ 5 51 44.4	— 0 51.9	— 1.5
11 Sagittæ	6	38 50.6	50 4.90	2 4.65	1.14	— 1.48	+ 16 11 51.2	35.8	— 1.8
23 χ "		41 10.6	52 25.28	2 4.65	1.19	— 1.43	+ 16 54 59.0	34.8	— 1.7
	8	41 16.3	52 31.00	2 4.65	1.19	— 1.43	+ 17 0 35.0	34.6	— 1.7
	7.8	44 12.6	55 27.78	2 4.64	1.24	— 1.41	+ 17 40 52.4	33.8	— 1.6
	7.8	44 27.7	55 42.92	2 4.64	— 1.26	— 1.40	+ 17 53 9.8	0 33.5	— 1.5
64 Aquilæ		47 40.1	19 58 55.85	2 4.64	+ 0.09	+ 0.85	— 1 17 58.8	1 6.8	— 0.7
a) 65 θ Antinoi		50 56.9	20 2 13.19	2 4.64	0.17	+ 0.89	— 1 27 45.0	1 6.9	— 0.7
Jupiter		12 55 10.2	6 27.18	2 4.63	1.49	+ 1.48	— 20 54 31.9	2 30.2	— 1.0
10 π Capricorni		13 5 39.2	16 57.90	2 4.62	+ 1.34	+ 1.45	— 18 53 59.2	2 15.6	— 0.7
2 ε Delphini		13 41.0	25 1.02	2 4.61	— 0.73	— 2.67	+ 10 33 38.2	0 44.2	— 1.9
4 ζ "		15 59.8	27 20.20	2 4.61	0.97	— 1.66	+ 13 55 5.4	39.2	— 2.0
6 β "		18 12.2	29 32.96	2 4.61	0.96	— 1.67	+ 13 49 57.5	39.3	— 2.0
9 α "		20 23.2	31 44.32	2 4.61	1.05	— 1.56	+ 15 8 18.2	37.4	— 1.9
	8	22 52.2	34 13.73	2 4.61	3.89	+ 1.93	+ 44 52 33.6	3.8	+ 5.1
50 α Cygni		24 49.8	36 11.65	2 4.60	3.83	+ 1.79	+ 44 28 54.2	4.2	+ 4.9
12 γ Delphini		27 23.1	38 45.36	2 4.60	1.07	— 1.54	+ 15 20 2.6	37.2	— 1.9
b)	8	33 19.0	44 42.24	2 4.60	1.21	— 1.42	+ 17 12 29.8	34.7	— 1.7
32 q Vulpeculæ	6.7	36 4.5	47 28.19	2 4.59	2.01	+ 0.28	+ 27 13 5.0	22.4	— 1.0
1 Equulei	6.7	38 57.8	50 21.96	2 4.59	— 0.23	— 0.36	+ 3 27 36.7	0 56.8	— 1.2
22 η Capricorni		42 42.3	54 7.08	2 4.59	+ 1.47	+ 1.46	— 20 41 9.8	2 29.2	— 0.9
	6.7	46 52.5	20 58 17.96	2 4.58	+ 0.11	+ 0.95	— 1 38 11.5	1 8.1	— 0.7
	6.7	50 9.7	21 1 35.70	2 4.58	— 2.19	+ 1.07	+ 29 18 47.2	0 19.9	+ 1.6
c)	8.9	53 49.0	5 15.66	2 4.57	3.30	+ 1.32	+ 40 16 31.5	8.6	+ 4.1
	8.9	56 42.0	8 9.19	2 4.57	3.30	+ 1.32	+ 40 13 31.3	8.6	+ 4.1
	7	13 59 52.6	11 20.19	2 4.57	3.48	+ 1.40	+ 41 45 7.2	7.1	+ 4.5
1 ε Pegasi		14 2 45.3	14 13.36	2 4.57	1.33	— 1.32	+ 18 51 51.6	32.6	— 1.3
	7	5 37.0	17 5.53	2 4.56	— 1.84	— 0.32	+ 25 13 33.8	0 24.7	+ 0.4
22 β Aquarii		10 43.0	22 12.37	2 4.56	+ 0.44	+ 1.86	— 6 31 14.5	1 21.5	— 0.5
39 ε Capricorni		15 29.3	26 59.46	2 4.55	+ 1.45	+ 1.44	— 20 24 46.8	2 26.7	— 0.9
	7	21 42.8	33 14.00	2 4.55	— 3.10	+ 1.27	+ 38 30 38.2	0 10.2	+ 3.8
77 Cygni	6	24 17.1	35 48.71	2 4.54	3.28	+ 1.31	+ 40 3 56.3	8.7	+ 4.1
	6	25 1.1	36 32.83	2 4.54	3.28	+ 1.32	+ 40 8 33.2	8.6	+ 4.1
	7	28 16.9	39 49.18	2 4.54	3.51	+ 1.43	+ 42 2 4.4	6.8	+ 4.5
	8.9	31 27.5	43 0.30	2 4.54	3.28	+ 1.31	+ 40 6 54.7	8.6	+ 4.1
	7.8	34 48.6	46 21.95	2 4.53	2.02	+ 0.32	+ 27 18 31.7	22.4	+ 1.0
d)	8.9	38 21.0	21 49 54.93	2 4.53	2.10	+ 0.69	+ 28 15 53.2	0 21.3	+ 1.3
34 α Aquarii							— 1 22 28.8	1 8.0	— 0.7
	6.7	54 26.7	22 6 3.27	2 4.51	— 1.12	— 1.49	+ 16 6 26.2	0 36.6	— 1.8
	7	14 57 26.0	9 3.06	2 4.51	+ 0.09	+ 0.85	— 1 19 13.6	1 8.0	— 0.7
48 γ "		15 0 55.4	12 33.03	2 4.51	0.17	+ 1.20	— 2 28 51.7	11.0	— 0.7
923 Mayer	7	3 51.9	15 30.01	2 4.50	0.16	+ 1.15	— 2 17 18.8	10.5	— 0.7
55 ζ Aquarii		8 7.0	19 45.77	2 4.50	+ 0.08	+ 0.79	— 1 7 52.1	1 7.8	— 0.7
	6.5	12 0.7	23 40.11	2 4.50	— 2.11	+ 0.74	+ 28 24 45.7	0 21.3	— 1.4
	7	14 32.1	26 11.93	2 4.49	3.24	+ 1.29	+ 39 40 46.0	9.2	+ 4.0
	7	15 26.7	27 6.68	2 4.49	3.23	+ 1.29	+ 39 37 55.7	9.2	+ 4.0
	7	18 14.4	29 54.84	2 4.49	3.47	+ 1.40	+ 41 39 34.7	7.2	+ 4.4
e) 10 Lacertæ	5.6	20 1.4	31 42.00	2 4.49	3.04	+ 1.27	+ 37 53 53.4	11.1	+ 3.7
44 η Pegasi		23 18.2	34 59.48	2 4.49	2.17	+ 1.01	+ 29 4 1.8	20.6	+ 1.6
	6	25 55.3	37 37.01	2 4.48	— 2.19	+ 1.07	+ 29 18 16.0	0 20.3	+ 1.6
Fomalhaut	1	35 53.8	47 37.16	2 4.48	+ 2.32	+ 5.05	— 30 42 33.5	4 59.9	— 6.1
1 o Andromedæ		42 22.7	54 7.14	2 4.47	— 3.40	+ 1.37	+ 41 8 6.1	7.8	+ 4.3
53 β Pegasi		15 43 40.7	22 55 25.36	— 2 4.46	— 1.98	+ 0.15	+ 26 53 11.5	— 0 23.1	+ 1.0

1783 JULY 10 Zero corr. = + 1′ 45″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
Regulus	1	2 45 22.6	9 58 55.97	— 2 4.06	— 0.91	— 1.79	+ 13 0 8.4	— 0 38.8	— 2.0
94 β Leonis		4 26 16.4	11 40 6.35	2 3.94	— 1.11	— 1.51	+ 15 45 49.5	0 35.0	— 1.8
67 α Virginis	1	6 1 44.7	13 15 50.33	2 3.82	+ 0.70	+ 1.79	— 10 1 57.2	1 29.0	— 0.4
85 η Ursæ Maj.		26 55.6	13 41 5.37	2 3.79	— 4.76	+ 3.45	+ 50 22 22.0	0 1.4	+ 5.7
Arcturus	1	6 53 40.6	14 7 54.77	— 2 3.76	— 1.46	— 1.21	+ 20 17 47.4	— 0 29.4	— 1.1

a ζ assumed as 50°; not 51°.
b ζ assumed as 31° 38′ 38″; not 31° 58′ 58″.
c ζ assumed as 8° 34′; not 8° 39′.
d T. I assumed as 37m.; not 36m.: and ζ assumed as 20° 35′ 11″; not 20° 35′ 21″.
e Min. assumed as 20; not 22.

1783 JULY 10—Continued Zero corr. = + 1′ 45″. 8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
27 γ Bootis . .		7 11 11.0	14 25 28.05	− 2 3.74	− 3.23	+ 1.28	+ 39 14 18.0	− 0 9.2	+ 3.9
30 ζ " . .		18 38.1	32 56.37	2 3.73	1.03	− 1.60	+ 14 38 48.8	36.8	− 1.9
36 ε " . .		23 18.8	37 37.84	2 3.73	− 2.10	+ 0.56	+ 27 58 23.4	0 20.7	+ 1.3
9 α² Libræ . .		26 38.3	40 57.89	2 3.72	+ 1.06	+ 1.61	− 15 7 55.6	1 50.2	− 0.5
20 γ " . .		39 4.3	14 53 25.93	2 3.71	1.79	+ 2.37	− 24 24 5.2	2 59.2	− 1.9
27 β " . .		7 53 1.2	15 7 25.12	2 3.69	+ 0.60	+ 1.87	− 8 34 48.0	1 24.4	− 0.4
3 β Cor. Bor. .		8 6 34.6	21 0.75	2 3.68	− 2.24	+ 1.17	+ 29 50 15.6	0 18.6	+ 1.9
5 α " . .		13 10.9	27 38.13	2 3.67	2.04	+ 0.36	+ 27 25 48.1	21.3	+ 1.1
24 α Serpentis .		21 14.7	35 43.25	2 3.66	0.49	− 1.17	+ 7 6 6.8	48.1	− 1.6
37 ε " . .		27 38.6	42 8.20	2 3.65	0.35	− 0.73	+ 5 7 34.0	51.7	− 1.4
5 r Herculis .		39 7.3	53 38.79	2 3.64	1.31	− 1.35	+ 18 24 25.6	31.8	− 1.5
45 Serpentis .		44 53.2	15 59 25.63	2 3.63	− 0.72	− 2.61	+ 10 27 50.6	0 42.9	− 1.8
1 δ Ophiuchi .		50 31.2	16 5 4.56	2 3.63	+ 0.21	+ 1.37	− 3 8 5.0	1 9.1	− 0.7
13 Herculis .		53 23.2	7 57.03	2 3.62	− 0.84	− 2.61	+ 11 57 21.4	0 40.6	− 2.0
50 σ Serpentis .		8 58 37.3	13 11.99	2 3.62	− 0.10	− 0.01	+ 1 32 15.8	0 58.7	− 1.0
3 υ Ophiuchi .	5	9 3 33.7	18 9.20	2 3.61	+ 0.55	+ 1.88	− 7 52 51.1	1 22.3	− 0.5
	7.8	6 17.0	20 52.95	2 3.61	+ 0.49	+ 1.87	− 7 2 7.9	1 19.9	− 0.5
	7	12 35.5	27 12.49	2 3.60	− 0.13	− 0.08	+ 1 49 52.9	0 58.0	− 1.0
a) 42 Herculis {	6.7	19 53.5	34 31.69	2 3.59	4.60	+ 3.30			
		9 20 7.4	34 45.63	2 3.59	4.60	+ 3.30	+ 49 19 46.3	0.5	+ 5.6
62 γ Ophiuchi .		10 24 19.0	17 39 7.78	2 3.52	− 0.19	− 0.24	+ 2 47 18.9	0 56.1	− 1.2
63 " . .		28 45.8	43 35.31	2 3.51	+ 1.82	+ 2.55	− 24 48 17.6	3 2.8	− 2.1
90 f Herculis .		33 32.4	48 22.69	2 3.50	− 3.32	+ 1.31	+ 40 1 51.4	0 8.5	+ 4.1
b) 57 ζ Serpentis .		36 15.4	51 6.14	2 3.50	+ 0.25	+ 1.49	− 3 40 16.6	1 10.9	− 0.6
96 Herculis .		40 24.1	55 15.50	2 3.50	− 1.50	− 1.16	+ 20 49 25.2	0 29.0	− 0.8
71 f Ophiuchi .		44 12.5	17 59 4.52	2 3.49	0.60	− 1.55	+ 8 42 8.6	45.8	− 1.8
73 q " . .		46 1.6	18 0 53.92	2 3.49	0.27	− 0.44	+ 3 57 21.0	54.1	− 1.3
74 r " . .		57 15.2	12 9.36	2 3.48	0.22	− 0.33	+ 3 16 45.7	55.5	− 1.2
107 ι Herculis .		10 59 46.2	14 40.77	2 3.47	2.16	+ 0.88	+ 28 45 13.5	20.0	+ 1.5
Herculis .		11 1 40.7	16 35.59	2 3.47	1.57	− 1.06	+ 21 39 42.4	28.0	− 0.6
	7.8	5 10.0	20 5.46	2 3.47	1.95	− 0.03	+ 26 18 23.9	22.6	+ 0.7
	7	11 2.4	26 17.85	2 3.46	1.25	− 1.41	+ 17 33 30.8	33.1	− 1.6
	8	15 16.8	30 13.92	2 3.46	3.16	+ 1.28	+ 38 41 55.3	9.8	+ 3.8
3 α Lyræ . .	1	16 45.7	31 43.06	2 3.45	− 3.15	+ 1.27	+ 38 33 50.2	0 9.9	+ 3.8
28 Sagittarii .	7	20 20.4	35 18.35	2 3.45	+ 1.64	+ 1.75	− 22 35 14.2	2 40.0	− 1.4
Saturn . .		24 4.5	39 3.06	2 3.45	1.64	+ 1.75	− 22 35 26.8	40.0	− 1.4
32 Sagittarii .	6	28 7.3	43 6.52	2 3.44	1.68	+ 1.87	− 22 58 43.0	43.8	− 1.5
35 " . .		29 3.1	44 2.47	2 3.44	+ 1.67	+ 1.84	− 22 54 31.8	2 43.0	− 1.5
c)	6.7	34 27.4	49 27.66	2 3.43	− 1.02	− 1.61	+ 14 32 26.7	0 37.2	− 1.9
13 ε Aquilæ .		36 54.6	51 55.26	2 3.43	1.04	− 1.59	+ 14 45 59.6	36.8	− 1.9
	7.8	41 31.0	18 56 32.42	2 3.43	1.51	− 1.15	+ 20 56 15.8	28.8	− 0.8
d) 18 ι Lyræ . .		46 39.2	19 1 41.46	2 3.42	2.84	+ 1.31	+ 35 44 38.2	12.7	+ 3.2
e)	6.7	51 16.0	6 19.02	2 3.42	3.32	+ 1.31	+ 40 2 59.6	8.5	+ 4.1
20 η " . .		53 26.4	8 29.78	2 3.41	3.16	+ 1.28	+ 38 45 17.4	9.7	+ 3.9
21 θ " . .		11 55 54.3	10 58.09	2 3.41	3.05	+ 1.27	+ 37 43 43.4	10.7	+ 3.6
	6.7	12 8 30.3	23 36.16	2 3.39	0.49	− 1.15	+ 7 1 37.0	48.7	− 1.6
38 μ Aquilæ .		10 31.2	25 37.39	2 3.39	0.48	− 1.13	+ 6 54 58.6	48.9	− 1.6
44 σ " . .		15 29.2	30 36.29	2 3.39	0.34	− 0.64	+ 4 54 6.8	52.5	− 1.4
47 χ " . .	6.5	19 23.0	34 30.65	2 3.38	0.79	− 3.00	+ 11 18 36.0	42.0	− 1.9
	7.8	21 6.7	36 14.64	2 3.38	1.60	− 1.01	+ 21 58 5.6	27.7	− 0.5
	10	23 43.4	38 51.77	2 3.38	1.72	− 0.75	+ 23 33 25.0	25.8	0.0
	7.8	25 42.1	40 50.80	2 3.37	1.83	− 0.42	+ 24 50 8.0	24.4	+ 0.4
53 α " . .		27 10.7	42 19.64	2 3.37	0.58	− 1.45	+ 8 17 32.6	46.7	− 1.7
	6.7	31 2.4	46 11.98	2 3.37	0.46	− 1.05	+ 6 34 7.0	49.6	− 1.6
60 β " . .							+ 5 51 43.0	50.8	− 1.5
11 Sagittæ .		34 52.8	50 3.01	2 3.36	1.15	− 1.48	+ 16 11 49.0	35.0	− 1.8
	7	35 20.1	50 30.38	2 3.36	1.35	− 1.50	+ 15 54 4.1	35.4	− 1.3
	7.8	40 14.5	55 25.58	2 3.36	1.26	− 1.41	+ 17 40 50.5	33.0	− 1.6
	7	12 40 29.1	19 55 40.22	− 2 3.36	− 1.28	− 1.40	+ 17 53 7.8	− 0 32.7	− 1.5

a Transits of star marked "Preceding" assumed as belonging to 42 Herculis, and those recorded for 42 as belonging to the preceding star, the differences of the threads having been applied by d'Agelet with the wrong sign.

b Div. assumed as 56 0; not 56 6.

c ζ assumed as 34° 18′ 39″.5; not 34° 18′ 9″.5.

d The two observations of this star, July 10 and 19, agree closely, both measures of ζ being recorded for each night. But on examining the conversion of divisions into arc we find in each date a result differing by 10′ from the true value which is correctly recorded in the column of zenith distance in arc. Div. assumed as 13 12 13; not 13 15 11.

e ζ assumed as 8° 45′ 4″.5; not 8° 45′ 34″.5.

1783 JULY 10—Continued Zero corr. = + 1′ 45″.8.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
64 Aquilæ . .	7.8	12 43 42.9	19 58 54.55	— 2 3.35	+ 0.09	+ 0.85	— 1 18 1.2	— 1 5.2	— 0.7
65 θ Antinoi .		46 59.1	20 2 11.29	2 3.35	0.10	+ 0.90	— 1 27 42.2	1 5.7	— 0.7
Jupiter .		50 41.9	5 54.70	2 3.35	+ 1.51	+ 1.48	— 20 56 12.1	2 26.7	— 1.0
	7	54 23.0	9 36.40	2 3.34	0.00	+ 0.36	— 0 1 57.3	1 2.4	— 0.8
	7	12 56 46.1	11 59.89	2 3.34	— 0.75	— 2.78	+ 10 46 53.2	0 42.8	— 1.9
	7	13 2 45.7	18 0.48	2 3.33	0.93	— 1.77	+ 13 11 54.8	39.2	— 2.0
a)	8.9	5 32.4	20 47.64	2 3.33	1.39	— 1.28	+ 19 22 56.8	30.8	— 1.3
b)	9	8 8.8	23 24.47	2 3.32	1.43	— 1.24	+ 19 51 46.8	30.3	— 1.1
4 ζ Delphini .		12 2.1	27 18.41	2 3.32	0.98	— 1.66	+ 13 55 6.6	38.2	— 2.0
6 β " . .		14 14.2	29 30.87	2 3.32	0.97	— 1.67	+ 13 50 0.0	38.3	— 2.0
9 α " . .		16 25.1	31 42.13	2 3.32	1.06	— 1.56	+ 15 8 19.9	36.5	— 1.9
50 α Cygni . .		20 52.4	36 10.16	2 3.31	3.88	+ 1.79	+ 44 28 54.0	4.2	+ 5.0
c)	8	29 21.5	44 40.65	2 3.30	1.22	— 1.42	+ 17 12 23.3	33.7	— 1.7
d)	7	13 32 6.6	20 47 26.20	— 2 3.30	— 2.04	+ 0.28	+ 27 13 4.8	— 0 21.7	+ 1.0

1783 JULY 12 Zero corr. = + 1′ 44″.1.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
55 α Ophiuchi .		10 4 18.8	17 26 57.39	— 1 59.21	— 0.90	— 1.86	+ 12 42 43.2	— 0 40.0	— 2.0
58 D " . .	6	9 46.4	32 25.89	1 59.19	+ 1.58	+ 1.54	— 21 32 57.4	2 32.5	— 1.1
62 γ " . .		16 23.3	39 3.88	1 59.18	— 0.19	— 0.25	+ 2 47 18.6	0 56.8	— 1.1
e) 63 " . .		20 49.4	43 30.71	1 59.17	+ 1.84	+ 2.55	— 24 48 15.0	3 2.9	— 2.0
f) 5 Sagittarii .		26 9.8	48 51.99	1 59.17	1.80	+ 2.30	— 24 13 37.0	2 57.9	— 1.8
10 γ " . .		31 5.0	53 47.99	1 59.16	2.34	+ 4.96	— 30 21 38.8	4 34.0	— 5.8
716 Mayer . .	7	33 32.8	17 56 16.20	1 59.16	2.16	+ 4.26	— 28 25 40.6	3 56.9	— 4.1
19 δ Sagittarii .		46 16.7	18 9 2.19	1 59.14	2.29	+ 4.81	— 29 51 26.8	4 26.6	— 5.4
22 λ " . .		53 45.9	16 32.60	1 59.13	1.91	+ 2.90	— 25 29 57.4	3 12.8	— 2.4
728 Mayer . .	6	56 38.9	19 26.07	1 59.12	1.36	+ 1.46	— 18 50 25.0	2 12.8	— 0.7
730 " . .	7	10 57 55.4	20 42.78	1 59.12	+ 1.34	+ 1.49	— 18 31 34.7	2 10.7	— 0.7
3 α Lyræ . .		11 8 50.3	31 39.47	1 59.11	— 3.20	+ 1.27	+ 38 33 52.4	0 10.0	+ 3.8
Saturn . .		15 31.6	38 21.87	1 59.10	+ 1.67	+ 1.75	— 22 36 2.2	2 41.9	— 1.4
32 ν^1 Sagittarii .		20 12.2	43 3.24	1 59.09	1.70	+ 1.87	— 22 58 40.5	45.3	— 1.5
35 ν^2 " . .		21 7.8	43 58.99	1 59.09	1.69	+ 1.84	— 22 54 30.0	44.5	— 1.5
37 ξ " . .		23 55.2	46 46.85	1 59.09	1.57	+ 1.51	— 21 21 40.0	2 31.2	— 1.0
	8	28 48.9	51 41.35	1 59.08	0.33	+ 1.70	— 4 44 16.5	1 14.4	— 0.5
g) 14 g Aquilæ .	6	30 36.9	53 29.65	1 59.08	0.28	+ 1.57	— 4 0 23.0	12.4	— 0.6
15 h " . .	6.7	32 38.0	55 31.08	1 59.08	+ 0.30	+ 1.64	— 4 20 49.6	13.3	— 0.6
	8.9	35 14.0	18 58 7.51	1 59.07	— 0.02	+ 0.26	+ 0 18 30.2	1 2.1	— 0.8
h)	7.8	43 20.5	19 6 15.34	1 59.06	3.36	+ 1.31	+ 40 2 59.9	0 8.5	+ 4.1
21 θ Lyræ . .		47 58.7	10 54.30	1 59.06	3.09	+ 1.27	+ 37 43 46.8	10.8	+ 3.6
30 δ Aquilæ .		53 39.7	16 36.23	1 59.05	— 0.19	— 0.23	+ 2 40 57.4	0 57.2	— 1.1
35 c " . .	6	11 58 21.8	21 19.10	1 59.04	+ 0.23	+ 1.39	— 3 14 9.9	1 10.4	— 0.7
38 μ " . .		12 2 34.8	25 32.80	1 59.04	— 0.49	— 1.13	+ 6 54 59.6	0 49.2	— 1.6
41 ι " . .							— 1 45 49.5	1 6.9	— 0.7
44 σ " . .		7 33.2	30 32.01	1 59.03	0.34	— 0.64	+ 4 54 11.1	0 52.9	— 1.4
47 χ " . .		11 27.5	34 26.96	1 59.02	0.80	— 3.00	+ 11 18 39.0	42.4	— 1.9
50 γ " . .		15 1.2	38 1.24	1 59.02	0.71	— 2.34	+ 10 4 48.0	44.3	— 1.8
53 α " . .		19 15.4	42 16.14	1 59.01	0.58	— 1.44	+ 8 17 34.6	47.1	— 1.7
	8.9	21 36.5	44 37.64	1 59.01	— 0.27	— 0.41	+ 3 50 25.7	0 55.0	— 1.3
	8	25 7.0	48 8.70	1 59.01	+ 0.02	+ 0.42	— 0 13 28.6	1 3.4	— 0.8
16 Vulpeculæ		31 50.7	54 53.51	1 59.00	— 1.81	— 0.57	+ 24 19 7.0	0 25.2	+ 0.1
i)	8	34 40.0	57 43.27	1 58.99	1.67	— 0.92	+ 22 35 25.0	27.2	— 0.3
17 " . .		36 34.6	19 59 37.60	1 58.99	1.70	— 0.85	+ 22 58 41.4	26.7	— 0.2
	8.9	40 30.8	20 3 35.14	1 58.99	— 1.49	— 1.19	+ 20 28 43.2	0 29.8	— 1.0
5 α^1 Capricorni		44 31.5	7 36.40	1 58.98	+ 0.94	+ 1.58	— 13 9 50.0	1 43.2	— 0.3
6 α^2 " . .		44 55.2	8 0.16	1 58.98	+ 0.94	+ 1.58	— 13 12 6.0	1 43.4	— 0.3
37 γ Cygni . .		12 53 24.0	16 30.37	1 58.97	— 2.31	+ 1.29	+ 39 32 36.6	0 9.0	+ 4.0
4 ζ Delphini .		13 4 6.6	27 14.73	1 58.95	0.99	— 1.66	+ 13 55 9.4	38.6	— 2 0
	6	7 57.1	31 5.86	1 58.95	1.08	— 1.57	+ 15 4 5.0	36.9	— 1.9
9 α " . .		8 29.4	31 38.25	1 58.95	1.08	— 1.56	+ 15 8 26.0	36.8	— 1.9
5 α Cygni . .		13 12 56.4	20 36 5.98	— 1 58.94	— 3.93	+ 1.79	+ 44 28 55.5	— 0 4.2	+ 5.0

a T. III assumed as 56s.; not 36s.
b ζ assumed as 28° 59′ 18″; not 28° 59′ 48″.
c ζ assumed as 31° 38′ 41″; not 31° 39′ 1″.
d Transits over T's. II and III assumed as recorded over Ts. I and II.
e ζ assumed as 73° 39′ 20″; not 73° 39′ 30″.
f Minute assumed as 25m.; not 28m.: T. I assumed as 44s.5; not 24s.5: T. II as 10s.; not 0s.: and ζ as 73° 4′; not 73° 5′.
g Div. assumed as 56 6 2; not 56 6 4.
h Div. assumed as 9 6 3; not 9 6 4.
i T. II assumed as 41s.; not 21s. Transits discordant.

1783 JULY 12—Continued Zero corr. = + 1′ 44″.1.

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
56 Cygni . .	6	13 21 15.2	20 44 26.15	— 1 58.93	— 3.76	+ 1.54	+ 43 13 12.3	— 0 5.4	+ 4.7
58 γ " . .		27 57.0	51 9.05	1 58.92	3.40	+ 1.32	+ 40 18 42.2	8.3	+ 4.1
59 f¹ " . .		31 17.1	54 29.70	1 58.92	4.24	+ 2.63	+ 46 38 59.8	2.1	+ 5.4
61 " . .	6	36 1.8	20 59 15.18	1 58.91	3.09	+ 1.27	+ 37 39 55.8	10.9	+ 3.6
64 ζ " . .		42 30.9	21 5 45.35	1 58.90	2.25	+ 1.07	+ 29 19 15.0	19.6	+ 1.6
66 ν " . .		13 47 48.0	11 3.32	1 58.90	— 2.70	+ 1.39	+ 33 58 3.0	0 14.7	+ 2.9
39 ε Capricorni		14 3 35.6	26 53.52	1 58.88	+ 1.49	+ 1.44	— 20 24 45.0	2 24.3	— 0.9
	7	7 46.2	31 4.80	1 58.87	— 3.16	+ 1.27	+ 38 19 14.0	0 10.3	+ 3.7
12 Pegasi .	6	14 50.7	38 10.45	1 58.86	1.61	— 1.02	+ 21 56 6.0	28.0	— 0.5
a) 13 " . .	6.7	18 33.8	41 54.16	1 58.85	1.17	— 1.48	+ 16 15 58.2	35.3	— 1.8
	6.7	20 6.7	43 27.31	1 58.85	1.36	— 1.32	+ 18 47 53.7	32.0	— 1.4
	8.9	22 55.5	46 16.57	1 58.85	— 2.07	+ 0.31	+ 27 18 26.7	0 21.8	— 1.1
	7.8	26 13.0	49 34.61	1 58.84	+ 0.38	+ 1.78	— 5 23 31.2	1 16.5	— 0.5
28 Aquarii .	7	28 37.5	51 59.51	1 58.84	0.03	+ 0.52	— 0 26 17.0	1 4.0	— 0.8
32 " . .		32 15.7	55 38.31	1 58.84	+ 0.14	+ 1.05	— 1 57 20.6	1 7.5	— 0.7
	6.7	35 50.2	21 59 13.40	1 58.83	— 1.33	— 1.35	+ 18 24 7.0	0 32.5	— 1.4
	7.8	38 39.7	22 2 3.37	1 58.83	1.34	— 1.34	+ 18 32 35.8	32.3	— 1.4
	8.9	40 43.2	4 7.21	1 58.82	1.73	— 0.69	+ 23 51 54.2	26.5	— 0.2
	8	42 22.0	5 46.28	1 58.82	2.08	+ 0.39	+ 27 31 2.6	21.6	+ 1.2
	10	· 45 7.8	8 32.54	1 58.82	1.60	— 1.04	+ 21 48 9.0	28.2	— 0.6
	8	48 4.5	11 29.72	1 58.82	2.98	+ 1.29	+ 36 39 29.4	11.9	+ 3.4
	7.8	51 9.7	14 35.43	1 58.81	3.31	+ 1.29	+ 39 33 3.8	9.0	+ 4.0
	7	55 45.4	19 11.89	1 58.80	2.94	+ 1.30	+ 36 19 4.6	12.3	+ 3.3
	7.8	57 25.5	20 52.24	1 58.80	3.73	+ 1.52	+ 42 59 19.0	5.7	+ 4.7
5 Lacertæ .		14 59 6.5	22 33.52	1 58.80	4.23	+ 2.59	+ 46 34 12.8	2.2	+ 5.4
b)	7.8	15 2 38.7	26 6.30	1 58.80	3.32	+ 1.29	+ 39 40 39.8	9.0	+ 4.0
	8.9	3 32.9	27 0.65	1 58.79	3.32	+ 1.29	+ 39 37 53.7	9.0	+ 4.0
c)	6.7	7 36.9	30 59.30	1 58.79	3.86	+ 1.69	+ 44 1 46.2	4.7	+ 4.9
43 ο Pegasi . .		10 9.6	33 38.43	1 58.79	2.14	+ 0.65	+ 28 9 21.0	20.9	+ 1.3
	6	14 1.9	37 31.37	1 58.78	2.24	+ 1.07	+ 29 18 15.8	19.7	+ 1.6
	5.6	16 48.8	40 18.73	1 58.78	2.94	+ 1.30	+ 36 15 11.7	0 12.4	+ 3.3
Fomalhaut	1	24 0.5	47 31.61	1 58.77	+ 2.37	+ 5.04	— 30 42 29.8	4 49.0	— 6.1
1 ο Androm. .		30 29.2	54 1.38	1 58.76	— 3.49	+ 1.37	+ 41 8 1.6	0 7.5	+ 4.3
56 Pegasi . .		35 4.2	22 58 37.12	1 58.76	1.81	— 0.58	+ 24 16 46.3	25.3	0.0
		15 38 27.0	23 2 0.48	— 1 58.75	— 1.18	— 1.47	+ 16 24 12.2	— 0 35.2	— 1.8

1783 JULY 14 Zero corr. = + 1′ 47″.4.

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
5 α Cor. Bor. .	2.3	7 57 19.6	15 27 30.45	— 1 55.91	— 2.10	+ 0.36	+ 27 25 47.2	— 0 21.4	+ 1.1
41 γ Serpentis .		8 18 13.5	48 27.78	1 55.89	— 1.19	— 1.47	+ 16 21 37.6	0 34.8	— 1.8
8 β Scorpii .		8 24 31.3	15 54 46.62	1 55.88	+ 1.41	+ 1.42	— 19 11 35.6	2 14.4	— 0.7
43 Sagittarii .	6	11 36 4.8	19 6 51.59	1 55.66	+ 1.42	+ 1.41	— 19 18 49.4	2 16.3	— 0.7
	7	39 28.3	10 15.66	1 55.65	— 1.58	— 1.09	+ 21 24 51.8	0 28.6	— 0.7
	7	42 51.8	13 39.71	1 55.65	1.61	— 1.04	+ 21 46 56.3	28.2	— 0.6
	7	45 33.0	16 21.35	1 55.65	1.46	— 1.24	+ 19 50 1.6	30.6	— 1.1
	7	47 8.1	17 56.71	1 55.64	1.46	— 1.24	+ 19 50 5.0	30.6	— 1.1
5 Vulpeculæ		47 57.6	18 46.34	1 55.64	1.45	— 1.26	+ 19 39 29.4	30.8	— 1.1
38 μ Aquilæ .		54 39.8	25 29.64	1 55.64	0.49	— 1.13	+ 6 54 57.6	49.3	— 1.6
44 σ " . .		11 59 38.2	30 28.86	1 55.63	0.35	— 0.64	+ 4 54 7.1	53.0	— 1.4
d) 10 Vulpeculæ	6	12 5 50.2	36 41.88	1 55.62	1.91	— 0.32	+ 25 14 25.7	24.1	+ 0.4
53 α Aquilæ .		11 19.6	42 12.18	1 55.61	— 0.59	— 1.45	+ 8 17 31.8	0 47.1	— 1.7
58 " . .		14 43.1	45 36.24	1 55.61	+ 0.02	+ 0.46	— 0 17 29.3	1 3.6	— 0.8
12 γ Sagittæ .		20 13.4	51 7.44	1 55.60	— 1.39	— 1.32	+ 18 53 38.4	0 31.8	— 1.3
15 Vulpeculæ		23 15.6	54 10.14	1 55.60	2.08	+ 0.26	+ 27 8 25.8	22.0	+ 1.0
	7.8	26 28.2	19 57 23.27	1 55.59	2.87	+ 1.32	+ 35 23 46.0	13.1	+ 3.1
27 β¹ " . .		29 22.5	20 0 18.05	1 55.59	— 2.87	+ 1.32	+ 35 21 23.8	0 13.2	+ 3.1
· Jupiter .		32 44.2	3 40.30	1 55.59	+ 1.56	+ 1.48	— 21 2 59.9	2 29.0	— 1.0
e) 5 α¹ Capricorni		39 32.8	10 30.02	1 55.58	1.11	+ 1.63			
f) 6 α² " . .		12 39 47.3	20 10 44.55	— 1 55.58	+ 1.11	+ 1.63	— 15 26 58.0	— 1 53.8	— 0.5

a Div. assumed as 34 12 2; not 34 12 1.
b ζ assumed as 9° 10′; not 9° 12′.
c ζ assumed as 4° 49′; not 4° 48′: and T. I as 6m.; not 7m.
d Min. assumed as 5 and 6; not 4 and 5.
e Name assumed as 8 β¹ Capricorni; not 5 α¹ Capricorni.
f Name assumed as 9 β Capricorni; not 6 α² Capricorni.

1783 JULY 19 Zero corr. = + 1′ 46″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
85 η Urs. Maj. .	2	5 51 17.6	13 40 50.54	— 1 48.58	— 4.95	+ 3.45	+ 50 22 23.0	— 0 1.4	+ 5.7
Arcturus .	1	6 18 2.1	14 7 39.44	1 48.56	1.52	— 1.21	+ 20 17 45.8	29.6	— 1.0
30 ζ Boötis . .		42 59.7	32 41.14	1 48.53	1.07	— 1.60	+ 14 38 47.8	37.1	— 1.9
36 ε " . .		47 40.5	37 22.71	1 48.53	— 2.18	+ 0.56	+ 27 58 23.6	0 20.8	+ 1.3
9 α² Libræ . .		6 50 59.9	14 40 42.65	1 48.52	+ 1.11	+ 1.61	— 15 7 58.5	1 51.0	— 0.5
5 α Cor. Bor. .		7 37 32.5	15 27 22.90	1 48.48	— 2.12	+ 0.36	+ 27 25 48.0	0 21.4	+ 1.1
24 α Serpentis		45 36.5	35 28.22	1 48.48	— 0.51	— 1.17	+ 7 6 6.0	0 48.7	— 1.6
32 μ " . .		50 16.4	40 8.89	1 48.46	+ 0.20	+ 1.28	— 2 46 2.2	1 8.9	— 0.7
37 ε " . .		52 0.1	41 52.88	1 48.46	— 0.37	— 0.71	+ 5 7 33.4	0 52.3	— 1.4
a) 7 δ Scorpii .		7 59 25.7	49 19.70	1 48.45	+ 1.66	+ 1.62	— 21 58 35.7	2 35.9	— 1.2
8 β " . .		8 4 44.2	15 54 39.07	1 48.45	+ 1.43	+ 1.42	— 19 11 31.1	2 14.7	— 0.7
16 τ Cor. Bor. .		12 58.8	16 2 55.02	1 48.44	— 3.09	+ 1.27	+ 37 1 29.6	0 11.5	+ 3.5
b)	6	15 48.7	5 45.39	1 48.44	3.09	+ 1.28	+ 36 58 5.6	11.5	+ 3.5
16 Herculis .	6.7	17 49.1	7 46.12	1 48.44	— 1.44	— 1.29	+ 19 20 46.6	0 31.0	— 1.3
Antares .		27 55.5	17 54.18	1 48.43	+ 2.00	+ 3.11	— 25 54 41.8	3 17.6	— 2.6
9 ω Ophiuchi .		31 7.5	21 6.70	1 48.42	1.57	+ 1.48	— 20 58 40.6	2 27.6	— 1.0
23 τ Scorpii .		34 9.8	24 9.50	1 48.42	+ 2.15	+ 3.94	— 27 43 9.2	3 43.9	— 3.5
38 Herculis .	7	42 39.5	32 40.60	1 48.41	— 0.38	— 0.74	+ 5 17 18.1	0 51.9	— 1.4
41 " . .	6	46 17.5	36 19.20	1 48.41	0.47	— 1.04	+ 6 30 3.2	49.8	— 1.6
c)	6.7	50 0.3	40 2.60	1 48.40	1.01	— 1.67	+ 13 58 5.0	38.3	— 2.0
46 *H.C.* 1712 .	6	51 25.8	41 28.33	1 48.40	1.02	— 1.65	+ 13 38 0.8	38.6	— 2.0
	6.7	54 22.5	44 25.50	1 48.40	2.66	+ 1.40	+ 32 54 17.8	15.7	+ 2.7
d)	7	8 58 30.0	48 33.69	1 48.40	3.84	+ 1.54	+ 43 10 37.0	5.4	+ 4.7
	6.7	9 2 49.0	52 53.40	1 48.39	3.80	+ 1.50	+ 42 49 35.0	5.8	+ 4.7
	7.8	6 34.2	16 56 39.22	1 48.39	3.82	+ 1.52	+ 43 1 5.8	5.6	+ 4.7
	8	10 52.7	17 0 58.43	1 48.38	2.12	+ 0.33	+ 27 21		
	8	11 4.5	1 10.26	1 48.38	2.12	+ 0.33	+ 27 22 10.0	21.6	+ 1.1
	7	16 11.4	6 18.00	1 48.38	1.63	— 1.06	+ 21 40 29.3	28.2	— 0.6
	6.7	20 17.5	10 24.77	1 48.37	1.77	— 0.79	+ 23 18 49.6	26.2	— 0.2
70 Herculis .		23 43.3	13 51.13	1 48.37	1.88	— 0.47	+ 24 42 13.4	24.6	+ 0.3
73 " . .	6.7	26 47.5	16 55.83	1 48.37	1.75	— 0.83	+ 23 9 3.5	26.4	— 0.2
e) 55 α Ophiuchi .		9 36 36.2	17 26 46.14	1 48.36	0.92	— 1.86	+ 12 42 44.6	40.2	— 2.0
112 Herculis .		10 54 31.2	18 44 53.94	1 48.28	1.58	— 1.11	+ 21 9 16.5	29.0	— 0.8
63 θ Serpentis .		10 56 54.9	47 18.04	1 48.27	0.28	— 0.43	+ 3 55 14.5	54.9	— 1.3
13 ε Aquilæ .		11 1 16.8	51 40.66	1 48.27	1.08	— 1.59	+ 14 46 1.0	37.2	— 1.9
	8	5 49.1	56 13.71	1 48.27	0.92	— 1.89	+ 12 40 5.0	40.3	— 2.0
17 ζ " . .		6 55.0	18 57 19.79	1 48.27	0.99	— 1.71	+ 13 32 4.7	39.1	— 2.0
f) 18 ι Lyræ . .		11 0.6	19 1 26.06	1 48.26	2.95	+ 1.31	+ 35 44 38.2	12.8	+ 3.2
	7.8	13 40.1	4 6.00	1 48.26	3.13	+ 1.27	+ 37 25 32.1	11.2	+ 3.6
	7	16 6.5	6 32.80	1 48.26	3.32	+ 1.28	+ 39 2 10.0	9.6	+ 3.9
20 ε " . .		17 48.5	8 15.08	1 48.26	3.29	+ 1.28	+ 38 45 17.2	9.8	+ 3.9
21 θ " . .		20 16.5	10 43.49	1 48.25	3.17	+ 1.27	+ 37 43 45.7	10.9	+ 3.6
	7.8	23 5.2	13 32.65	1 48.25	1.64	— 1.04	+ 21 46 58.8	28.2	— 0.6
30 δ Aquilæ		25 57.3	16 25.22	1 48.25	0.19	— 0.23	+ 2 40 59.4	57.4	— 1.1
9 Cygni .	6.7	31 2.3	21 31.06	1 48.24	2.27	+ 0.98	+ 28 59 40.0	20.0	+ 1.6
	6.7	40 14.2	30 44.47	1 48.23	1.52	— 1.21	+ 20 17 3.8	30.1	— 1.0
5 α Sagittæ .		41 46.8	32 17.32	1 48.23	1.29	— 1.41	+ 17 30 27.0	33.6	— 1.6
6 β " . .		42 41.4	33 12.07	1 48.23	1.25	— 1.43	+ 16 57 57.0	34.4	— 1.7
48 ψ Aquilæ .	6.7	45 51.6	36 22.79	1 48.23	0.93	— 1.81	+ 12 46 37.0	40.3	— 2.0
50 γ " . .		47 18.6	37 50.03	1 48.23	0.73	— 2.35	+ 10 4 48.6	44.4	— 1.8
53 α " . .		51 32.8	42 4.93	1 48.22	0.60	— 1.44	+ 8 17 35.4	47.2	— 1.7
	7	53 54.0	44 26.52	1 48.22	0.28	— 0.41	+ 3 50 22.0	55.1	— 1.3
60 β " . .		11 55 58.9	19 46 31.75	1 48.22	— 0.42	— 0.90	+ 5 51 51.5	0 51.4	— 1.5
Jupiter .		12 10 16.6	20 0 51.80	1 48.20	+ 1.59	+ 1.49	— 21 11 17.8	2 30.5	— 1.0
5 α¹ Capricorni		16 49.3	7 25.58	1 48.20	0.96	+ 1.58	— 13 9 54.0	1 43.7	— 0.3
6 α² " . .		17 13.1	7 49.45	1 48.20	0.96	+ 1.58	— 13 12 9.5	43.9	— 0.3
9 β " . .		20 0.6	10 37.41	1 48.19	+ 1.13	+ 1.63	— 15 26 54.5	1 54.1	— 0.5
37 γ Cygni . .		25 42.1	16 19.84	1 48.19	— 3.38	+ 1.29	+ 39 32 34.2	0 9.1	+ 4.0
	7	31 43.3	22 22.03	1 48.18	1.39	— 1.33	+ 18 41 8.6	32.2	— 1.4
	7	33 52.2	24 31.28	1 48.18	1.66	— 1.00	+ 22 4 44.0	27.9	— 0.5
g)	6	38 1.4	28 41.16	1 48.17	4.24	+ 2.37	+ 45 55 32.6	2.8	+ 5.3
	7	12 43 16.8	20 33 57.42	— 1 48.17	— 4.08	+ 1.92	+ 44 52 33.0	— 0 3.9	+ 5.1

a ζ assumed as 70° 49′ 23″.5; not 70° 49′ 53″.5.
b ζ assumed as 11° 52′ 59″; not 11° 52′ 29″.
c ζ assumed as 34° 53′; not 34° 58′.
d ζ assumed as 5° 40′ 28″; not 5° 40′ 8″.
e ζ assumed as 36° 8′; not 36° 9′: and Micr. corr. as + 4; not — 4.
f Div. assumed as 13 12 13; not 13 15 11. (See also note d, July 10.)
g Div. assumed as 3 1 15; not 3 1 11.

1783 JULY 19—Continued Zero corr. = + 1′ 46″. 4.

	Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	50 α Cygni . .		12 45 13.9	20 35 54.84	— 1 48.17	— 4.03	+ 1.79	+ 44 28 57.5	— 0 4.2	+ 5.0
	53 ε " . .		48 37.1	39 18.80	1 48.17	2.68	+ 1.40	+ 33 8 27.4	15.5	+ 2.7
	56 " . .		53 33.2	44 15.51	1 48.16	3.85	+ 1.54	+ 43 13 11.6	5.5	+ 4.7
	57 " . .		12 56 44.4	47 27.23	1 48.16	3.89	+ 1.59	+ 43 32 37.9	5.1	+ 4.8
	58 υ " . .		13 0 15.3	50 58.71	1 48.15	3.48	+ 1.32	+ 40 18 39.7	8.3	+ 4.1
a)	59 f " . .		3 35.5	54 19.46	1 48.15	4.34	+ 2.63	+ 46 38 59.1	2.1	+ 5.4
	62 ξ " . .		8 10.7	20 58 55.41	1 48.14	3.82	+ 1.52	+ 43 2 22.8	5.6	+ 4.7
		7	13 51.5	21 4 37.14	1 48.14	2.34	+ 1.14	+ 29 42 42.8	19.2	+ 1.8
	64 ζ " . .		14 48.6	5 34.40	1 48.14	2.30	+ 1.07	+ 29 19 16.4	19.7	+ 1.7
b)	66 υ " . .		20 6.0	10 52.67	1 48.13	2.76	+ 1.39	+ 33 58 6.4	14.7	+ 2.9
	1 ε Pegasi . .		23 10.1	13 57.27	1 48.13	1.40	— 1.32	+ 18 51 55.6	32.0	— 1.3
		7	26 6.3	16 53.95	1 48.13	3.02	+ 1.30	+ 36 24 6.0	12.2	+ 3.4
	69 Cygni . .	6.7	28 0.4	18 48.36	1 48.12	2.95	+ 1.31	+ 35 42 42.2	12.9	+ 3.2
	2 f " . .		31 12.1	22 0.59	1 48.12	1.71	— 0.91	+ 22 40 30.6	27.2	— 0.3
		6	36 13.6	27 2.92	1 48.12	4.08	+ 1.92	+ 44 52 0.6	3.9	+ 5.1
	73 ρ " . .		36 53.0	27 42.43	1 48.12	4.05	+ 1.83	+ 44 36 32.2	4.1	+ 5.0
		8	42 8.7	32 58.99	1 48.11	2.15	+ 0.47	+ 27 45 7.0	21.4	+ 1.2
	78 μ " . .		45 28.3	36 19.14	1 48.11	2.15	+ 0.47	+ 27 44 48.0	21.4	+ 1.2
c)		6.7	45 43.8	36 34.68	1 48.11	2.16	+ 0.50	+ 27 46 20.0	21.4	+ 1.2
	13 Pegasi . .		50 51.3	41 43.02	1 48.10	1.20	— 1.48	+ 16 15 58.4	35.4	— 1.8
		6	54 26.2	45 18.51	1 48.10	1.38	— 1.33	+ 18 37 59.2	32.3	— 1.3
		6	55 7.1	45 59.52	1 48.10	1.39	— 1.33	+ 18 41		
d)		6	13 59 42.8	50 35.97	1 48.09	— 1.33	— 1.39	+ 17 58 25.6	0 33.1	— 1.5
	32 Aquarii .		14 4 33.2	55 27.16	1 48.09	+ 0.14	+ 1.05	— 1 57 22.1	1 8.0	— 0.7
	34 α " . .		5 34.0	56 28.13	1 48.09	+ 0.10	+ 0.86	— 1 22 26.8	1 6.3	— 0.7
		6.7	9 4.1	21 59 58.64	1 48.08	— 0.12	— 0.04	+ 1 40 8.8	0 59.7	— 1.0
		6.7	12 21.2	22 3 16.44	1 48.08	1.10	— 1.57	+ 14 57 42.5	37.3	— 1.9
		7.8	15 38.3	6 34.08	1 48.08	— 2.22	+ 0.78	+ 28 28 50.6	0 20.6	+ 1.4
	48 γ " . .		21 19.3	12 16.01	1 48.07	+ 0.18	+ 1.20	— 2 28 49.4	1 9.1	— 0.7
	55 ζ " . .		28 32.0	19 29.90	1 48.06	0.08	+ 0.80	— 1 7 55.2	1 6.0	— 0.7
	59 υ " . .		33 37.3	24 36.04	1 48.06	+ 1.64	+ 1.59	— 21 47 38.8	2 36.4	— 1.2
		8.9	38 29.7	29 29.24	1 48.05	— 0.58	— 1.39	+ 8 7 25.6	0 47.7	— 1.7
	42 ζ Pegasi . .		41 31.2	32 31.24	1 48.05	0.70	— 2 06	+ 9 41 22.9	45.2	— 1.8
	44 η " . .		43 42.4	34 42.80	1 48.05	2.28	+ 1.00	+ 29 4 9.4	20.0	— 1.6
	47 λ " . .		46 58.1	37 59.04	1 48.05	1.69	— 0.95	+ 22 24 32.5	27.6	— 0.4
		6.7	50 54.2	41 55.79	1 48.04	1.33	— 1.39	+ 17 58 46.2	33.2	— 1.5
		6	14 55 1.8	46 4.07	1 48.04	3.34	+ 1.28	+ 39 11 47.5	0 9.4	+ 3.9
	Fomalhaut							— 30 42 33.8	4 50.3	— 6.1
		7	15 1 36.4	52 39.64	1 48.03	3.98	+ 1.72	+ 44 10 58.0	0 4.5	+ 4.9
	1 ο Androm. .		2 47.3	53 50.83	1 48.03	3.58	+ 1.37	+ 41 8 3.8	7.5	+ 4.3
	54 α Pegasi . .		4 47.2	55 51.06	1 48.03	1.02	— 1.65	+ 14 1 34.1	38.6	— 2.0
		6	7 36.1	22 58 40.42	1 48.02	1.49	— 1.23	+ 19 56 55.8	30.6	— 1.1
		6.7	9 51.1	23 0 55.79	1 48.02	2.22	+ 0.78	+ 28 28 24.5	20.6	+ 1.4
		7	11 28.7	2 33.66	1 48.02	2.26	+ 0.92	+ 28 50 43.3	20.3	+ 1.5
		6.7	14 2.7	5 8.08	1 48.02	1.36	— 1.35	+ 18 26 19.2	32.7	— 1.4
		7	18 0.6	9 6.63	1 48.01	2.65	+ 1.40	+ 32 50 31.6	16.0	+ 2.7
	12 Androm. .		21 12.7	12 19.26	1 48.01	3.09	+ 1.28	+ 36 58 25.6	11.7	+ 3.5
		6.7	24 57.0	16 4.17	1 48.01	3.44	+ 1.30	+ 39 53 46.3	8.8	+ 4.1
	13 " . .		27 27.5	18 35.08	1 48.01	3.65	+ 1.40	+ 41 41 26.7	7.0	+ 4.4
		6.5	33 48.4	24 57.02	1 48.00	1.46	— 1.26	+ 19 37 36.4	31.1	— 1.2
	17 ι " . .		38 15.5	29 24.85	1 48.00	3.69	+ 1.43	+ 42 2 21.2	0 6.7	+ 4.5
	18 λ Piscium .		15 41 39.0	32 48.91	1 47.99	0.04	+ 0.19	+ 0 34 46.0	1 2.1	— 0.9
	21 α Androm. .		16 7 49.6	23 59 3.81	1 47.96	2.17	+ 0.50	+ 27 52 10.4	0 21.4	— 1.3
	88 γ Pegasi . .		16 12 42.6	0 3 57.61	1 47.96	— 1.02	— 1.65	+ 13 57 44.0	38.8	— 2.0
	Capella .							+ 45 43 37.0	0 3.0	+ 5.2
	Rigel . .		21 13 49.8	5 5 54.29	— 1 47.66	+ 0.61	+ 1.87	— 8 28 7.3	— 1 26.4	— 0.5

1783 JULY 20 Zero corr. = + 1′ 47″. 9.

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
Jupiter .		12 5 46.9	20 0 17.91	— 1 46.80	+ 1.60	+ 1.50	— 21 13 5.4	— 2 29.8	— 1.0
9 β Capricorni	3	16 3.3	10 36.00	1 46.79	+ 1.13	+ 1.63	— 15 26 59.0	1 53.2	— 0.5
37 γ Cygni . .		12 21 45.0	20 16 18.64	— 1 46.79	— 3.38	+ 1.29	+ 39 32 32.2	— 0 9.0	+ 4.0

a ξ assumed as 2° 12′ 7″.5; not 2° 12′ 37″.5.
b T. I assumed as 38s.5; not 58s.5.
c ξ assumed as 28° 4′; not 28° 1′.
d Div. assumed as 32; not 33.

1783 JULY 20—Continued Zero corr. = + 1′ 47″. 9.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7.8	12 27 39.0	20 22 13.61	— 1 46.78	— 1.39	— 1.33	+ 18 41 36.0	— 0 31.9	— 1.4
	7.8	27 46.0	22 20.63	1 46.78	1.39	— 1.33	+ 18 41 4.1	31.9	— 1.4
	7.8	29 55.6	24 30.59	1 46.78	1.66	— 1.01	+ 22 4 42.1	27.7	— 0.5
	6	34 4.5	28 40.17	1 46.78	4.23	+ 2.36	+ 45 55 31.9	2.8	+ 5.3
	7	38 3.0	32 39.32	1 46.77	3.89	+ 1.59	+ 43 32 53.0	5.1	+ 4.8
50 α Cygni . .		41 17.3	35 54.15	1 46.77	4.03	+ 1.79	+ 44 28 56.8	4.2	+ 4.9
53 ε " . .		44 40.2	39 17.60	1 46.77	2.68	+ 1.40	+ 33 8 25.0	15.4	+ 2.7
	6	52 0.8	46 39.40	1 46.76	0.26	— 0.39	+ 3 42 4.5	55.0	— 1.3
a) 1 Equulei .		12 55 25.4	20 50 4.56	— 1 46.76	— 0.25	— 0.36	+ 3 27 32.2	— 0 55.5	— 1.2

1783 JULY 23 Zero corr. = + 1′ 44″. 8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
14 ν Scorpii .	4	7 55 28.2	16 1 7.76	— 1 43.20	+ 1.40	+ 1.45	— 18 52 38.4	— 2 13.8	— 0.7
9 Herculis .		7 58 39.2	4 19.28	1 43.20	— 0.40	— 0.82	+ 5 34 19.6	0 51.9	— 1.5
2 ε Ophiuchi .		8 2 54.8	8 35.58	1 43.20	+ 0.30	+ 1.60	— 4 9 37.6	1 13.0	— 0.6
7 χ " . .		10 29.7	16 11.72	1 43.19	1.33	+ 1.54	— 17 56 41.8	2 7.7	— 0.6
Antares .		12 6.6	17 48.89	1 43.19	2.00	+ 3.12	— 25 54 37.3	3 19.1	— 2.6
8 φ Ophiuchi .							— 16 7 24.2	1 57.3	— 0.5
23 τ Scorpii .		18 21.3	24 4.62	1 43.18	2.15	+ 3.94	— 27 43 2.6	3 46.0	— 3.5
13 ζ Ophiuchi .		21 13.6	26 57.39	1 43.18	+ 0.73	+ 1.79	— 10 7 7.7	1 31.4	— 0.4
38 Herculis .		26 50.2	32 34.91	1 43.18	— 0.38	— 0.75	+ 5 17 20.8	0 52.4	— 1.4
41 " . .	6.7	30 29.0	36 14.31	1 43.17	0.47	— 1.04	+ 6 30 4.0	50.3	— 1.6
46 " . .	7	32 28.7	38 14.37	1 43.17	2.25	+ 0.97	+ 28 44 26.6	20.2	+ 1.5
	6.7	34 11.7	39 57.63	1 43.17	1.02	— 1.65	+ 13 58 8.6	38.6	— 2.0
46 *H.C.* 1712	6	35 36.8	41 22.96	1 43.17	0.99	— 1.69	+ 13 38 1.0	39.0	— 2.0
	6	38 33.7	44 20.34	1 43.17	2.66	+ 1.40	+ 32 54 17.6	15.8	+ 2.7
	7	42 42.2	48 29.52	1 43.16	3.84	+ 1.54	+ 43 10 39.8	5.5	+ 4.7
	9	45 2.1	50 49.80	1 43.16	2.62	+ 1.39	+ 32 33 40.0	16.1	+ 2.6
	6	47 0.4	52 48.42	1 43.16	3.80	+ 1.50	+ 42 49 34.0	5.8	+ 4.7
58 ε Herculis .		47 58.8	53 46.98	1 43.16	2.49	+ 1.33	+ 31 13 52.1	17.6	+ 2.2
	8	50 46.0	16 56 34.64	1 43.16	3.82	+ 1.52	+ 43 1 6.8	5.6	+ 4.7
	8.7	57 13.2	17 3 2.90	1 43.15	1.61	— 1.08	+ 21 28 25.5	28.7	— 0.7
	7	8 58 48.6	4 38.56	1 43.15	1.61	— 1.08	+ 21 28 49.0	28.7	— 0.7
	7	9 0 22.5	6 12.72	1 43.15	1.63	— 1.06	+ 21 40 30.6	28.4	— 0.6
b)	6	2 38.0	8 28.59	1 43.15	1.82	— 0.65	+ 23 58 24.6	25.7	0.0
	6.7	4 28.4	10 19.29	1 43.15	1.77	— 0.79	+ 23 18 48.2	26.5	— 0.2
70 " . .		7 54.6	13 46.05	1 43.15	1.89	— 0.47	+ 24 42 14.4	24.8	+ 0.2
73 " . .	6.7	10 58.4	16 50.35	1 43.14	1.75	— 0.82	+ 23 9 6.2	26.7	— 0.2
	8.9	16 57.0	22 49.93	1 43.14	1.30	— 1.41	+ 17 40 16.0	33.5	— 1.6
c) 55 α Ophiuchi .		20 47.5	26 41.06	1 43.13	0.92	— 1.86	+ 12 42 45.4	40.4	— 2.0
79 Herculis .	6	24 29.1	30 23.27	1 43.13	1.86	— 0.54	+ 24 25 40.0	25.1	+ 0.1
d)	6	35 15.1	41 11.03	1 43.12	1.44	— 1.29	+ 19 18 58.4	31.4	— 1.3
	6.7	9 37 32.7	17 43 29.01	1 43.12	— 1.69	— 0.96	+ 22 22 2.4	0 27.6	— 0.4
	7	11 41 36.0	19 47 52.69	1 43.01	+ 0.02	+ 0.43	— 0 13 31.0	1 4.2	— 0.8
	6	43 49.4	50 6.46	1 43.01	— 0.06	+ 0.14	+ 0 47 14.6	1.8	— 0.9
	9.10	45 58.6	52 16.02	1 43.01	+ 0.06	+ 0.65	— 0 47 44.5	1 5.5	— 0.7
14 γ Sagittæ .		49 5.2	55 23.13	1 43.01	— 1.13	— 1.53	+ 15 24 57.4	0 36.6	— 1.9
Jupiter .		52 18.4	19 58 36.86	1 43.01	+ 1.60	+ 1.51	— 21 17 54.6	2 32.9	— 1.0
65 θ Aquilæ .	6.5	55 32.5	20 1 51.49	1 43.00	+ 0.10	+ 0.90	— 1 27 40.7	1 7.0	— 0.7
20 Vulpeculæ		11 58 23.3	4 42.76	1 43.00	— 1.99	— 0.16	+ 25 49 9.7	0 23.7	+ 0.7
29 b^3 Cygni . .		12 1 51.8	8 11.83	1 43.00	2.99	+ 1.30	+ 36 7 26.2	12.6	+ 3.3
25 Vulpeculæ	6	8 10.9	14 31.97	1 42.99	1.80	— 0.71	+ 23 44 31.4	26.1	0.0
e) 39 b Cygni . .		10 37.5	16 58.97	1 42.99	2.51	+ 1.36	+ 31 28 29.2	17.5	+ 2.3
40 " . .	6	14 57 5	21 19.68	1 42.99	3.17	+ 1.27	+ 37 42 32.8	11.0	+ 3.6
f)	6	19 7.8	25 30.67	1 42.98	4.72	+ 3.25	+ 49 1 45.5	0.2	+ 5.6
		24 26.4	30 50.14	1 42.98	1.10	— 1.57	+ 15 4 0.5	37.3	— 1.9
9 α Delphini .		24 58.6	31 22.42	1 42.98	1.11	— 1.56	+ 15 8 22.8	37.2	— 1.9
50 α Cygni . .		29 25.7	35 50.25	1 42.97	4.03	+ 1.79	+ 44 28 59.2	4.3	+ 4.9
53 ε " . .		32 48.3	39 13.40	1 42.97	2.68	+ 1.40	+ 33 8 26.6	15.7	+ 2.7
15 Delphini .		34 41.0	41 6.41	1 42.97	0.85	— 2.85	+ 11 43 40.7	42.2	— 2.0
55 Cygni . .		36 54.8	43 20.58	1 42.97	4.14	+ 2.11	+ 45 17 10.0	3.5	+ 5.1
57 " . .		40 55.8	47 22.24	1 42.97	3.89	+ 1.60	+ 43 32 36.0	5.2	+ 4.8
1 l. Equulei .	7	12 43 33.8	20 50 0.67	— 1 42.96	— 0.25	— 0.36	+ 3 27 37.2	— 0 56.5	— 1.2

a Div. assumed as 48 6 11; not 48 6 12.
b ζ assumed as 24° 52′ 9″.5; not 24° 52′ 39″.5.
c ζ assumed as 36°; not 26°.
d Min. assumed as 35m.; not 36m.
e ζ assumed as 17° 22′; not 17° 23′.
f Div. assumed as 95 12 15; not 95 12 14.

1783 JULY 23—Continued Zero corr. = + 1′ 44″.8.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a) 2 Equulei .	7	12 46 50.7	20 53 18.11	− 1 42.96	− 0.45	− 1.00	+ 6 19 27.7	− 0 51.1	− 1.5
3 " . .	6	49 5.4	20 55 33.18	1 42.96	0.33	− 0.58	+ 4 38 21.5	54.1	− 1.4
5 γ " . .		55 6.4	21 1 35.18	1 42.96	0.67	− 1.76	+ 9 15 8.9	46.2	− 1.8
6 " . .	5.6	55 18.1	1 46.91	1 42.96	0.66	− 1.73	+ 9 11 18.0	46.3	− 1.8
b) 7 δ " . .		12 59 13.7	5 42.99	1 42.95	0.65	− 1.71	+ 9 7 22.4	46.4	− 1.8
8 α " . .		13 0 15.9	6 45.52	1 42.95	0.31	− 0.52	+ 4 20 58.0	54.7	− 1.3
66 υ Cygni . .		4 17.6	10 47.88	1 42.95	2.76	+ 1.39	+ 33 58 5.4	14.9	+ 2.9
1 ε Pegasi . .		7 21.1	13 51.88	1 42.94	1.40	− 1.32	+ 18 52 0.6	32.3	− 1.3
69 Cygni . .		12 11.5	18 43.07	1 42.94	2.95	+ 1.31	+ 35 42 41.9	13.1	+ 3.2
71 g " . .		16 42.6	23 14.91	1 42.94	4.18	+ 2.22	+ 45 33 33.4	3.2	+ 5.2
72 " . .		21 10.3	27 43.34	1 42.93	3.15	+ 1.27	+ 37 32 29.6	11.2	+ 3.6
74 " . .		23 30.4	30 3.82	1 42.93	3.37	+ 1.29	+ 39 25 4.6	9.3	+ 3.9
75 " . .		26 55.1	33 29.10	1 42.93	3.72	+ 1.45	+ 42 15 58.4	6.4	+ 4.5
77 " . .	6	28 53.4	35 27.71	1 42.93	3.45	+ 1.31	+ 40 3 56.0	8.6	+ 4.1
Cygni . .		29 37.2	36 11.64	1 42.92	3.46	+ 1.32	+ 40 8 31.0	8.6	+ 4.1
	7.8	32 53.4	39 28.39	1 42.92	3.69	+ 1.43	+ 42 2 6.2	6.7	+ 4.5
	7	39 25.1	46 1.16	1 42.92	2.12	+ 0.32	+ 27 18 33.3	22.1	+ 1.1
17 Pegasi . .		41 34.1	48 10.51	1 42.92	− 0.80	− 2.89	+ 11 2 17.5	0 43.4	− 1.9
28 Aquarii .	6	45 7.7	51 44.70	1 42.91	+ 0.03	+ 0.51	− 0 26 12.5	1 4.8	− 0.8
31 o " . .	6	47 12.6	53 49.94	1 42.91	0.23	+ 1.38	− 3 12 6.0	11.5	− 0.7
32 " . .		48 45.0	21 55 22.59	1 42.91	+ 0.14	+ 1.05	− 1 57 18.1	8.5	− 0.7
34 α " . .							− 1 22 25.5	1 7.1	− 0.7
26 θ Pegasi . .		54 23.9	22 1 2.42	1 42.90	− 0.37	− 0.73	+ 5 7 36.0	0 53.5	− 1.4
	5	13 59 43.6	6 22.99	1 42.90	3.28	+ 1.27	+ 38 37 1.2	10.1	+ 3.8
1 Lacertæ .	5	14 1 39.5	8 19.21	1 42.90	3.05	+ 1.29	+ 36 38 51.2	12.1	+ 3.4
2 " . .		7 11.9	13 52.52	1 42.89	4.16	+ 2.15	+ 45 25 5.2	3.5	+ 5.1
4 " . .		10 50.8	17 32.02	1 42.89	4.61	+ 3.10	+ 48 20 58.2	0.5	+ 5.5
5 " . .		15 36.3	22 18.30	1 42.89	− 4.33	+ 2.60	+ 46 34 12.6	0 2.2	+ 5.4
62 η Aquarii .		19 14.5	25 57.10	1 42.89	+ 0.09	+ 0.82	− 1 14 14.8	1 6.7	− 0.7
40 Pegasi . .		23 28.4	30 11.70	1 42.88	− 1.36	− 1.35	+ 18 23 13.4	0 33.0	− 1.5
42 ζ " . .		25 43.0	32 26.66	1 42.88	0.70	− 2.06	+ 9 41 23.6	45.6	− 1.8
c) 45 " . .	7	29 59.3	36 43.66	1 42.88	1.35	− 1.37	+ 18 12 37.0	33.1	− 1.5
d) 48 μ " . .		34 35.6	41 20.72	1 42.87	1.78	− 0.79	+ 23 26 27.2	26.2	− 0.1
50 ρ " . .		39 20.3	46 6.20	1 42.87	0.55	− 1.30	+ 7 39 3.3	48.9	− 1.7
51 " . .		41 51.1	48 37.41	1 42.86	1.46	− 1.26	+ 19 35 32.9	31.4	− 1.2
53 β " . .		48 16.7	55 4.07	1 42.86	2.08	+ 0.15	+ 26 53 18.5	22.6	+ 1.0
	7	51 47.8	22 58 35.75	1 42.86	1.49	− 1.23	+ 19 56 59.6	30.9	− 1.1
	7	54 3.0	23 0 51.32	1 42.85	2.22	+ 0.78	+ 28 28 29.5	20.8	+ 1.4
e)	7	14 58 13.8	5 2.81	1 42.85	1.36	− 1.35	+ 18 26 21.4	33.0	− 1.4
	8	15 2 12.0	9 1.66	1 42.85	2.65	+ 1.40	+ 32 50 28.5	16.1	+ 2.7
	8	3 6.7	9 56.51	1 42.85	2.61	+ 1.39	+ 32 31 19.5	16.4	+ 2.6
12 Androm. .	6	5 24.2	12 14.39	1 42.84	3.09	+ 1.28	+ 36 58 27.6	11.8	+ 3.5
	7	9 8.6	15 59.40	1 42.84	3.43	+ 1.30	+ 39 53 46.8	8.9	+ 4.1
f) 13 " . .	6	11 39.2	18 30.39	1 42.83	3.65	+ 1.40	+ 41 41 25.3	7.1	+ 4.4
	5.6	17 59.6	24 51.86	1 42.83	1.46	− 1.26	+ 19 37 38.7	31.4	− 1.2
	7.8	21 13.1	28 5.89	1 42.83	3.70	+ 1.43	+ 42 4 50.0	6.7	+ 4.5
17 ι " . .	3.4	22 26.9	29 19.89	1 42.83	3.70	+ 1.43	+ 42 2 20.5	6.7	+ 4.5
76 Pegasi . .	6	26 38.7	33 32.38	1 42.83	1.11	− 1.56	+ 15 7 1.8	37.5	− 1.9
20 ψ Androm. .		30 13.3	37 7.57	1 42.82	4.12	+ 2.06	+ 45 11 8.1	3.6	+ 5.1
79 Pegasi . .		33 34.7	40 29.52	1 42.82	2.14	+ 0.42	+ 27 36 48.9	21.8	+ 1.2
81 φ " . .		36 21.4	43 16.68	1 42.82	1.33	− 1.40	+ 17 53 57.9	33.6	− 1.5
	7.8	39 13.9	46 9.65	1 42.82	1.89	− 0.46	+ 24 43 43.6	25.1	+ 0.3
84 ψ " . .		41 35.5	48 31.64	1 42.81	1.82	− 0.67	+ 23 55 0.7	26.1	0.0
	7	44 10.7	51 7.26	1 42.81	1.97	− 0.20	+ 25 41 40.5	24.0	+ 0.6
g) 85 " . .		45 42.6	52 39.41	1 42.81	2.00	− 0.14	+ 25 54 47.2	23.8	+ 0.7
86 " . .		49 26.4	56 23.82	1 42.81	0.88	− 2.36	+ 12 10 26.4	41.8	− 2.0
87 " . .		52 42.5	23 59 40.46	1 42.81	1.25	− 1.43	+ 16 59 24.4	35.0	− 1.7
88 γ " . .		15 56 54.6	0 3 53.25	1 42.80	1.02	− 1.65	+ 13 57 43.7	39.3	− 2.0
24 θ Androm. .		16 0 36.4	7 35.66	1 42.80	3.13	+ 1.27	+ 37 26 57.8	11.4	+ 3.6
27 ρ " . .		4 31.7	11 31.60	1 42.80	− 3.06	+ 1.29	+ 36 44 20.4	0 12.1	+ 3.4
7 Mayer . .	6.7	8 8.3	15 8.79	1 42.79	+ 0.24	+ 1.43	− 3 25 26.0	1 12.5	− 0.7
29 π Androm. .		20 4.6	27 7.05	1 42.79	− 2.61	+ 1.39	+ 32 29 58.6	0 16.5	+ 2.6
Mars . .		25 19.4	32 22.71	1 42.78	+ 0.09	+ 0.82	− 1 15 1.7	1 7.0	− 0.7
63 δ Piscium .		16 32 8.6	0 39 13.03	− 1 42.78	− 0.46	− 1.01	+ 6 23 30.2	− 0 51.4	− 1.5

a Div. assumed as 45 5 13; not 45 5 11.
b Min. assumed as 59m.; not 58m.
c Div. assumed as 32 10 15; not 32 10 14.
d ζ assumed as 25°; not 35°.
e Div. assumed as 32; not 37.
f T. 11 rejected.
g ζ assumed as 22° 56′ 18″.5; not 22° 56′ 8″.5.

1783 JULY 26 Zero corr. = + 1′ 48″.7.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	67 α Virginis .	1	4 58 26.8	13 15 26.95	— 1 40.72	+ 0.73	+ 1.79	— 10 1 55.8	— 1 29.3	— 0.4
	Arcturus .		5 50 22.9	14 7 31.58	1 40.68	— 1.53	— 1.21	+ 20 17 44.5	0 29.5	— 1.0
	27 γ Boötis . .		6 7 52.9	25 4.45	1 40.66	3.36	+ 1.28	+ 39 14 16.6	9.2	+ 3.9
a)	30 ζ " . .		15 20.8	32 33.58	1 40.65	1.08	— 1.60	+ 14 38 50.4	37.0	— 1.9
	36 ε " . .		20 1.5	37 15.05	1 40.65	— 2.19	+ 0.57	+ 27 58 22.4	0 20.8	+ 1.3
	9 α² Libræ . .		23 20.5	40 34.59	1 40.65	+ 1.12	+ 1.61	— 15 7 59.2	1 50.8	— 0.5
	20 γ " . .		35 46.7	53 2.83	1 40.64	+ 1.87	+ 2.37	— 24 24 4.4	2 58.0	— 1.9
	42 β Boötis . .		38 14.5	14 55 31.04	1 40.64	— 3.61	+ 1.37	+ 41 13 34.6	0 7.3	+ 4.3
	27 β Libræ . .		6 49 43.2	15 7 1.63	1 40.62	+ 0.62	+ 1.87	— 8 34 48.9	1 24.9	— 0.4
	24 α Serpentis .		7 17 57.3	35 20.37	1 40.60	— 0.51	— 1.17	+ 7 6 6.4	0 48.5	— 1.6
	28 β " . .		20 33.2	37 56.70	1 40.60	1.19	— 1.49	+ 16 5 28.6	35.1	— 1.8
	37 ε " . .		24 20.7	41 44.82	1 40.60	— 0.37	— 0.70	+ 5 7 33.2	0 52.0	— 1.4
	6 π Scorpii . .		29 58.6	47 23.65	1 40.59	+ 1.96	+ 2.88	— 25 27 16.6	3 10.7	— 2.3
b)	8 β " . .		37 5.2	15 54 31.42	1 40.59	1.43	+ 1.42	— 19 11 33.1	2 14.1	— 0.7
	14 ν " . .		43 37.7	16 1 4.97	1 40.58	1.41	+ 1.45	— 18 52 41.3	2 12.3	— 0.7
	1 δ Ophiuchi .		47 13.5	4 41.36	1 40.58	0.22	+ 1.37	— 3 8 4.8	1 9.6	— 0.7
c)	2 ε " . .		51 4.5	8 32.99	1 40.57	+ 0.30	+ 1.60	— 4 9 41.4	1 12.1	— 0.6
	26 γ Herculis .		7 56 37.5	14 6.90	1 40.57	— 1.47	— 1.26	+ 19 39 7.6	0 30.5	— 1.2
	Antares .		8 0 16.0	17 46.00	1 40.57	+ 2.00	+ 3.11	— 25 54 45.6	3 16.5	— 2.6
	9 ω Ophiuchi .		3 27.8	20 58.34	1 40.56	1.58	+ 1.48	— 20 58 43.6	2 26.8	— 1.0
	23 τ Scorpii . .		6 30.7	24 1.74	1 40.56	+ 2.16	+ 3.94	— 27 43 13.6	3 42.9	— 3.5
	13 ζ Ophiuchi .							— 10 7 13.0	1 30.1	— 0.4
	40 ζ Herculis .		17 18.5	34 51.34	1 40.55	— 2.57	+ 1.38	+ 31 58 49.5	0 16.5	+ 2.5
	26 ε Scorpii . .		20 10.2	37 43.48	1 40.55	+ 2.76	+ 5.30	— 33 48 17.8	6 34.1	— 8.8
	52 Herculis .		27 4.7	44 39.11	1 40.54	— 4.32	+ 2.52	+ 46 20 23.8	0 2.4	+ 5.3
	27 κ Ophiuchi .		31 34.4	49 9.55	1 40.54	0.70	— 2.08	+ 9 42 22.8	44.5	— 1.8
	32 " . .		37 21.5	54 57.60	1 40.54	1.06	— 1.62	+ 14 23 49.4	37.4	— 2.0
d)	60 Herculis .		39 28.5	16 57 4.95	1 40.53	0.95	— 1.79	+ 13 1 57.9	39.5	— 2.0
		6.7	42 37.3	17 0 14.27	1 40.53	3.99	+ 1.70	+ 44 5 9.3	4.5	+ 4.9
		7	45 45.5	3 22.98	1 40.53	2.74	+ 1.40	+ 33 37 33.9	14.9	+ 2.8
	64 α " . .		48 53.7	6 31.69	1 40.53	1.08	— 1.60	+ 14 37 51.0	37.2	— 1.9
	69 " . .		54 17.6	11 56.48	1 40.52	3.16	+ 1.27	+ 37 30 5.0	11.0	+ 3.6
		8	8 56 55.0	14 34.31	1 40.51	1.83	— 0.68	+ 23 53 12.4	25.4	0.0
e)		7	9 0 40.7	18 20.63	1 40.51	2.66	+ 1.40	+ 32 51 1.2	15.6	+ 2.7
	76 λ " . .		6 2.6	23 43.42	1 40.51	2.04	— 0.04	+ 26 15 41.3	22.7	+ 0.7
	55 α Ophiuchi .		8 57.0	26 38.30	1 40.51	0.93	— 1.86	+ 12 42 44.6	40.0	— 2.0
		7	12 13.5	29 55.34	1 40.51	0.15	— 0.14	+ 2 9 15.0	57.9	— 1.0
		8	15 13.1	32 55.43	1 40.50	0.32	— 0.54	+ 4 28 23.0	53.4	— 1.3
	60 β " . .		16 47.3	34 29.89	1 40.50	0.34	— 0.58	+ 4 39 22.0	53.0	— 1.4
	62 γ " . .		21 1.7	38 44.99	1 40.50	0.20	— 0.25	+ 2 47 19.6	56.6	— 1.1
		6	25 58.6	43 42.70	1 40.49	2.32	+ 1.08	+ 29 22 1.6	19.4	+ 1.6
		7.8	28 7.8	45 52.26	1 40.49	2.58	+ 1.39	+ 32 3 5.0	16.5	+ 2.5
	89 Herculis		30 40.5	48 25.38	1 40.49	2.01	— 0.09	+ 26 4 21.8	22.9	+ 0.7
	66 n Ophiuchi .		33 30.2	51 15.55	1 40.49	0.32	— 0.52	+ 4 22 50.4	53.5	— 1.3
	97 Herculis .	7	37 25.8	55 11.80	1 40.49	1.74	— 0.87	+ 22 54 39.4	26.5	— 0.2
f)	70 P Ophiuchi .		40 24.2	58 10.82	1 40.48	0.17	— 0.19	+ 2 27 16.0	57.2	— 1.0
		6.7	41 9.0	17 58 55.61	1 40.48	0.16	— 0.13	+ 2 11 23.0	57.8	— 1.0
g)		6	44 26.0	18 2 13.15	1 40.48	1.21	— 1.47	+ 16 25 42.8	34.8	— 1.8
h)		6	9 47 32.2	5 19.86	1 40.48	1.20	— 1.48	+ 16 12 38.3	35.1	— 1.8
	3 α Lyræ . .		10 13 28.8	18 31 20.72	1 40.46	3.28	+ 1.27	+ 38 33 52.9	10.0	+ 3.8
		6	10 59 41.5	19 17 41.00	1 40.42	1.49	— 1.24	+ 19 50 0.0	30.8	— 1.1
	5 Vulpeculæ	6.5	11 0 31.1	18 30.73	1 40.41	1.46	— 1.26	+ 19 39 27.0	31.0	— 1.2
		6.7	0 49.1	18 48.78	1 40.41	1.49	— 1.24	+ 19 48 59.0	30.8	— 1.1
	7 " . .		3 38.5	21 38.64	1 40.41	1.49	— 1.24	+ 19 49 22.1	30.8	— 1.1
		6	6 47.1	24 47.76	1 40.41	1.20	— 1.42	+ 17 16 30.8	34.1	— 1.7
	4 ε Sagittæ .		11 12.7	29 14.09	1 40.41	1.18	— 1.49	+ 15 58 2.8	35.9	— 1.8
	12 φ Cygni . .		14 30.6	32 32.53	1 40.40	2.34	+ 1.12	+ 29 38 20.0	19.4	+ 1.8
i)	48 ψ Aquilæ .		18 12.3	36 14.84	1 40.40	0.93	— 1.81	+ 12 46 34.2	40.2	— 2.0
		7.8	22 21.6	40 24.82	1 40.40	0.56	— 1.31	+ 7 43 50.5	48.0	— 1.7
	53 α " . .		23 53.6	41 57.07	1 40.40	0.60	— 1.44	+ 8 17 30.6	47.1	— 1.7
	60 β " . .		28 19.7	46 23.90	1 40.39	0.42	— 0.90	+ 5 51 45.4	51.3	— 1.5
	12 γ Sagittæ .		11 32 47.7	19 50 52.63	— 1 40.39	— 1.41	— 1.32	+ 18 53 36.4	— 0 32.0	— 1.3

a Ts. II and III assumed as 21s. and 44s.5; not 31s. and 54s.5, respectively.
b T. III assumed as 29s.; not 30s.
c T. I assumed as 41s.5; not 51s.5.
d T. II assumed as 28s.; not 38s.
e Div. assumed as 17 1; not 17 5.
f Transits over Ts. I and II assumed as 40m. 1s. and 40m. 54s.5; not 40m. 51s. and 41m. 14s.5; and name not 70 P. Ophiuchi.
g Div. assumed as 34; not 39.
h Div. assumed as 34 13 1; not 34 13 0.
i T. III assumed as 18m. 36s.; not 18m. 29s.

1783 JULY 26—Continued Zero corr. = + 1′ 48″. 7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
25 Cygni . .		11 35 37.2	19 53 42.60	— 1 40.39	— 3.04	+ 1.30	+ 36 25 47.4	— 0 12.2	+ 3.3
16 η Sagittæ .		39 12.0	57 17.98	1 40.38	1.45	— 1.28	+ 19 21 33.0	31.4	— 1.3
17 Vulpeculæ	6	41 13.0	19 59 19.31	1 40.38	1.75	— 0.85	+ 22 58 42.4	26.9	— 0.2
18 “ . .		45 8.6	20 3 15.56	1 40.38	2.03	— 0.04	+ 26 14 53.5	23.1	+ 0.7
a) 19 “ . .		46 22.2	4 29.36	1 40.38	2.02	— 0.07	+ 26 8 57.2	23.2	+ 0.7
22 “ . .	6.5	49 45.6	7 53.32	1 40.38	1.73	— 0.88	+ 22 50 4.4	27.1	— 0.2
37 γ Cygni . .		11 58 2.6	16 11.68	1 40.37	3.40	+ 1.29	+ 39 32 35.2	9.1	+ 4.0
41 i “ . .		12 4 6.3	22 16.38	1 40.36	2.34	+ 1.12	+ 29 37 47.4	19.4	+ 1.8
	6	8 5.0	26 15.73	1 40.36	1.52	— 1.22	+ 20 13 53.4	30.3	— 1.1
27 Vulpeculæ		11 23.0	29 34.27	1 40.36	1.98	— 0.19	+ 25 41 36.0	23.8	+ 0.6
	6.7	14 21.1	32 32.86	1 40.35	3.91	+ 1.59	+ 43 32 50.8	5.2	+ 4.8
	7	15 37.2	33 49.17	1 40.35	4.10	+ 1.92	+ 44 52 37.0	3.9	+ 5.1
50 α Cygni . .		17 35.6	35 47.90	1 40.35	4.05	+ 1.79	+ 44 28 57.8	4.2	+ 5.0
52 κ “ . .		20 14.3	38 27.02	1 40.35	2.37	+ 1.18	+ 29 54 44.2	19.0	+ 1.9
54 λ “ . .		22 29.2	40 42.29	1 40.35	2.96	+ 1.32	+ 35 40 30.6	13.0	+ 3.2
56 “ . .		25 54.3	44 7.95	1 40.34	3.87	+ 1.54	+ 43 13 15.0	5.5	+ 4.7
b) 57 “ . .		29 5.8	47 19.97	1 40.34	3.91	+ 1.60	+ 43 32 39.2	5.2	+ 4.8
58 ν “ . .		32 35.8	50 50.54	1 40.34	3.50	+ 1.32	+ 40 18 39.7	8.3	+ 4.1
59 f¹ “ . .		35 57.1	54 12.39	1 40.34	4.36	+ 2.63	+ 46 39 1.4	2.1	+ 5.4
	7	39 42.4	20 57 58.31	1 40.33	4.26	+ 2.48	+ 45 58 55.8	2.8	+ 5.3
63 f² “ . .		42 36.9	21 0 53.29	1 40.33	4.38	+ 2.67	+ 46 45 7.6	2.0	+ 5.4
	7	46 0.7	4 17.65	1 40.33	2.26	+ 0.91	+ 28 48 26.0	20.3	+ 1.5
64 ζ “ . .		47 9.8	5 26.94	1 40.33	2.32	+ 1.07	+ 29 19 17.0	19.8	+ 1.6
	6.7	53 49.8	12 8.04	1 40.32	1.58	— 1.13	+ 21 5 44.8	29.3	— 0.8
	6	12 57 39.3	15 58.17	1 40.32	1.77	— 0.79	+ 23 19 42.8	26.6	— 0.2
35 Vulpeculæ		13 1 32.2	19 51.71	1 40.31	2.07	+ 0.08	+ 26 38 58.3	22.7	+ 0.9
2 f Pegasi . .		3 33.0	21 52.84	1 40.31	1.72	— 0.91	+ 22 40 33.4	27.4	— 0.3
	6.7	6 0.9	24 21.15	1 40.31	1.70	— 0.95	+ 22 25 25.1	27.7	— 0.4
3 “ . .		10 18.4	28 39.36	1 40.31	0.41	— 0.84	+ 5 38 23.5	51.7	— 1.5
c)	8.9	13 31.6	31 53.08	1 40.30	0.29	— 0.45	+ 4 1 56.8	54.7	— 1.3
7 “ . .	6	14 46.6	33 8.28	1 40.30	0.34	— 0.59	+ 4 41 19.5	53.5	— 1.3
12 “ . .		19 29.2	37 51.65	1 40.30	1.66	— 1.02	+ 21 56 10.6	28.2	— 0.5
13 “ . .		23 12.6	41 35.66	1 40.30	1.20	— 1.48	+ 16 16 3.2	35.6	— 1.8
17 “ . .		29 43.8	48 7.93	1 40.29	0.80	— 2.89	+ 11 2 18.4	42.9	— 1.9
18 “ . .	6	32 37.5	51 2.11	1 40.29	0.41	— 0.85	+ 5 40 25.0	51.8	— 1.5
21 “ . .		36 1.4	54 26.57	1 40.29	0.75	— 2.52	+ 10 19 49.9	44.0	— 1.8
23 “ . .		39 4.5	21 57 30.17	1 40.28	2.18	+ 0.53	+ 27 53 40.9	21.3	+ 1.3
	6	42 55.8	22 1 22.10	1 40.28	2.58	+ 1.39	+ 32 5 40.0	16.8	+ 2.5
d) 27 “ . .		43 39.8	2 6.22	1 40.28	2.58	+ 1.39	+ 32 5 46.0	16.8	+ 2.5
	6.7	46 29.4	4 56.29	1 40.28	2.73	+ 1.40	+ 33 30 56.9	15.4	+ 2.8
1 Lacertæ .		49 48.9	8 16.34	1 40.27	3.07	+ 1.29	+ 36 38 51.3	12.0	+ 3.4
	7	53 23.5	11 51.53	1 40.27	0.95	— 1.80	+ 12 55 58.5	40.1	— 2.0
	7	56 43.5	15 12.08	1 40.27	1.06	— 1.63	+ 14 10 25.6	38.3	— 2.0
	7	13 58 29.9	16 58.77	1 40.27	1.28	— 1.42	+ 17 19 45.9	34.2	— 1.7
	6	14 2 16.5	20 45.99	1 40.26	1.98	— 0.20	+ 25 38 18.6	23.9	+ 0.6
	6.7	4 46.3	23 16.20	1 40.26	2.23	+ 0.74	+ 28 24 48.0	20.8	+ 1.4
43 Pegasi . .		14 48.3	33 19.85	1 40.26	2.21	+ 0.65	+ 28 9 29.2	21.1	+ 1.3
47 λ “ . .		19 18.7	37 50.99	1 40.26	1.70	— 0.95	+ 22 24 32.8	27.7	— 0.4
49 σ “ . .		24 36.6	43 9.76	1 40.25	0.63	— 1.55	+ 8 40 20.0	46.6	— 1.8
	6.7	33 57.7	52 32.40	1 40.24	4.00	+ 1.72	+ 44 11 2.5	4.6	+ 4.9
1 o Androm. .							+ 41 8 5.0	7.6	+ 4.3
56 Pegasi . .		39 42.7	22 58 18.33	1 40.23	1.86	— 0.57	+ 24 16 48.2	25.5	0.0
57 m “ . .		41 43.8	23 0 19.76	1 40.23	0.54	— 1.27	+ 7 29 34.2	48.7	— 1.6
	6.7	45 41.3	4 17.91	1 40.23	2.22	+ 0.68	+ 28 14 45.7	21.0	+ 1.3
61 “ . .	6.7	48 19.7	6 56.74	1 40.22	2.10	+ 0.21	+ 27 2 49.0	22.3	+ 1.0
e)	7.8	50 59.5	9 36.98	1 40.22	2.04	0.00	+ 26 24 5.0	23.1	+ 0.8
	7.8	56 42.7	15 21.12	1 40.22	1.71	— 0.93	+ 22 33 6.8	27.6	— 0.3
68 “ . .		14 57 41.1	16 19.68	1 40.22	1.68	— 0.99	+ 22 11 34.0	28.0	— 0.4
69 “ . .		15 0 0.9	18 39.86	1 40.22	1.83	— 0.66	+ 23 57 29.8	25.9	0.0
71 “ . .		5 42.8	24 22.70	1 40.21	1.61	— 1.10	+ 21 17 4.0	29.2	— 0.7
	8	8 6.3	26 46.59	1 40.21	1.28	— 1.42	+ 17 12 59.0	34.4	— 1.7
f) 75 s “ .		10 5.4	28 46.02	1 40.21	1.28	— 1.42	+ 17 11 2.0	34.4	— 1.7
77 “ . .		15 23.8	34 5.29	1 40.21	0.66	— 1.71	+ 9 6 58.0	46.0	— 1.8
	6.7	15 19 36.2	23 38 18.38	— 1 40.20	— 1.86	— 0.56	+ 24 21 23.0	— 0 25.5	+ 0.1

a ζ assumed as 22° 42′ 6″.5; not 22° 42′ 36″.5.
b T. I assumed as 34s.5; not 39s.5.
c Div. assumed as 47; not 48.
d Div. assumed as 17 13 15; not 17 13 14.
e T. III rejected.
f Min. ass'd as 9m. and 10m.; not 8m. and 9m.

1783 JULY 26—Continued Zero corr. = + 1′ 48″.7.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	15 21 55.0	23 40 37.56	− 1 40.20	− 2.05	+ 0.01	+ 26 27 18.6	− 0 23.1	+ 0.8
	6.7	25 0.5	43 43.57	1 40.19	1.23	− 1.46	+ 16 40 48.0	35.2	− 1.7
	6.7	26 46.5	45 29.86	1 40.19	1.30	− 1.41	+ 17 31 25.2	34.0	− 1.6
	6	28 41.2	47 24.87	1 40.19	1.61	− 1.09	+ 21 25 23.2	29.0	− 0.7
Double .	6.7	31 27.7	50 11.82	1 40.19	2.62	+ 1.39	+ 32 29 56.2	16.4	+ 2.6
	7	33 41.6	52 26.09	1 40.19	3.60	+ 1.37	+ 41 7 52.0	7.6	+ 4.3
	7	36 31.1	55 16.05	1 40.19	3.56	+ 1.36	+ 40 51 26.1	7.9	+ 4.3
	7	39 28.6	23 58 14.04	1 40.18	3.32	+ 1.28	+ 38 54 52.2	9.8	+ 3.9
a) 22 Androm. .	5.6	42 5.0	0 0 50.87	1 40.18	4.10	+ 1.92	+ 44 50 3.8	3.9	+ 5.1
	7.8	44 28.6	3 14.87	1 40.18	4.10	+ 1.92	+ 44 51 32.0	3.9	+ 5.1
	4	50 6.3	8 53.50	1 40.18	− 0.72	− 2.29	+ 9 59 16.8	0 44.9	− 1.8
10 Ceti . .		15 58 23.2	17 11.76	1 40.17	+ 0.09	+ 0.83	− 1 15 30.8	1 6.2	− 0.7
28 Androm. .		16 1 37.5	20 26.59	1 40.16	− 2.24	+ 0.79	+ 28 31 53.8	0 20.8	+ 1.5
51 Piscium .		4 6.9	22 56.40	1 40.16	0.41	− 0.93	+ 5 44 45.4	51.9	− 1.5
b) 29 π Androm. .		8 13.9	27 4.08	1 40.16	2.62	+ 1.39	+ 32 29 57.8	16.4	+ 2.6
31 δ " . .		10 39.2	29 29.78	1 40.16	2.35	+ 1.13	+ 29 38 56.0	19.5	+ 1.8
32 " . .		12 17.2	31 8.05	1 40.15	3.25	+ 1.27	+ 38 14 22.2	10.5	+ 3.7
34 ζ " . .		18 45.5	37 37.41	1 40.15	1.75	− 0.85	+ 23 3 54.2	27.1	− 0.2
35 ν " . .		20 46.6	39 38.84	1 40.15	3.44	+ 1.30	+ 39 51 59.0	8.9	+ 4.1
37 μ " . .		27 36.9	46 30.26	1 40.15	3.14	+ 1.27	+ 37 17 32.6	11.5	+ 3.5
71 ε Piscium .		34 31.4	53 25.90	1 40.14	0.48	− 1.08	+ 6 42 28.4	50.3	− 1.6
43 β Androm. .		16 40 26.4	0 59 21.87	− 1 40.14	− 2.82	+ 1.37	+ 34 26 27.6	− 0 14.4	+ 2.9

1783 JULY 27 Zero corr. = + 1′ 48″.0.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
	6.7	9 51 28.7	18 13 13.56	− 1 39.10	− 2.34	+ 1.11	+ 29 33 31.0	− 0 19.2	+ 1.8
108 Herculis .		52 34.7	14 19.74	1 39.10	− 2.35	+ 1.15	+ 29 44 35.2	0 19.0	+ 1.8
c) 59 d Serpentis .	6	56 3.2	17 48.81	1 39.10	0.00	+ 0.34	+ 0 4 6.4	1 2.4	− 0.8
60 c " . .		9 58 18.8	20 4.79	1 39.09	+ 0.15	+ 1.09	− 2 7 16.1	7.5	− 0.7
61 e " . .		10 0 39.4	22 25.78	1 39.09	0.08	+ 0.80	− 1 9 12.0	5.2	− 0.7
1 m Aquilæ .		3 17.3	25 4.11	1 39.09	+ 0.61	+ 1.87	− 8 23 13.4	1 24.8	− 0.5
	7.8	8 2.2	29 49.79	1 39.08	− 3.32	+ 1.28	+ 38 41 59.0	0 9.8	+ 3.8
3 a Lyræ . .		9 31.6	31 19.43	1 39.08	3.30	+ 1.27	+ 38 33 52.4	10.0	+ 3.8
4 Aquilæ .		13 47.2	35 35.73	1 39.08	0.13	− 0.08	+ 1 50 45.4	58.7	− 1.0
110 Herculis .		16 15.6	38 4.54	1 39.08	1.54	− 1.21	+ 20 19 48.1	29.8	− 1.1
	6	21 25.2	43 14.99	1 39.07	2.52	+ 1.34	+ 31 21 53.0	17.3	+ 2.3
10 β Lyræ . .							+ 33 5 46.4	15.4	+ 2.7
d) 63 θ Serpentis .		25 18.1	47 8.56	1 39.07	0.28	− 0.43	+ 3 55 15.8	54.6	− 1.3
18 Aquilæ .		36 39.2	18 58 31.48	1 39.06	− 0.78	− 2.75	+ 10 43 57.8	0 43.0	− 1.9
e) 20		40 41.2	19 2 34.14	1 39.05	+ 0.60	+ 1.88	− 8 17 35.2	1 24.6	− 0.5
22		45 36.2	7 29.95	1 39.05	− 0.32	− 0.54	+ 4 27 6.0	0 53.6	− 1.3
27 d		49 10.6	11 4.93	1 39.04	+ 0.09	+ 0.84	− 1 17 31.2	1 5.5	− 0.7
30 δ		54 20.6	16 15.78	1 39.04	− 0.19	− 0.23	+ 2 40 57.4	0 57.1	− 1.1
5 Vulpeculæ		56 33.6	18 29.14	1 39.04	1.48	− 1.26	+ 19 39 31.0	30.7	− 1.2
	7	58 15.2	20 11.02	1 39.03	1.49	− 1.25	+ 19 47 50.5	30.5	− 1.1
7 " . .		10 59 41.2	21 37.25	1 39.03	1.49	− 1.24	+ 19 49 24.4	30.5	− 1.1
	6	11 2 50.2	24 46.77	1 39.03	1.29	− 1.42	+ 17 16 31.6	33.7	− 1.7
f)	7	6 38.0	28 35.19	1 39.03	1.68	− 1.00	+ 22 5 42.4	27.6	− 0.5
13 θ Cygni . .	4	10 22.4	32 20.20	1 39.02	4.87	+ 3.36	+ 49 41 45.4	0.8	+ 5.7
g) 49 υ Aquilæ .		14 52.0	36 50.54	1 39.02	0.51	− 1.17	+ 7 5 6.8	48.8	− 1.6
h)	7.8	24.6	40 23.70	1 39.01	0.56	− 1.31	+ 7 43 51.0	47.8	− 1.7
53 a " . .		19 56.5	41 55.87	1 39.01	0.61	− 1.44	+ 8 17 34.8	46.9	− 1.7
	7.8	22 16.9	44 16.65	1 39.01	0.28	− 0.41	+ 3 50 18.5	54.7	− 1.3
	6.7	25 2.6	47 2.80	1 39.01	1.82	− 0.72	+ 23 44 24.8	25.7	0.0
12 γ Sagittæ .		28 50.6	50 51.42	1 39.00	1.42	− 1.32	+ 18 53 39.4	31.6	− 1.3
15 Vulpeculæ		31 51.6	53 52.92	1 39.00	2.12	+ 0.26	+ 27 8 31.7	21.9	+ 1.0
26 c² Cygni . .		34 54.4	19 56 56.22	1 39.00	4.84	+ 3.33	+ 49 28 37.7	0.6	+ 5.6
17 θ Sagittæ .	6.7	40 4.5	20 2 7.19	1 38.99	1.53	− 1.21	+ 20 15 46.0	29.8	− 1.1
	6	41 11.4	3 14.28	1 38.99	1.55	− 1.19	+ 20 28 48.6	29.6	− 1.0
22 Vulpeculæ		45 48.6	7 52.24	1 38.99	1.74	− 0.88	+ 22 50 6.4	26.8	− 0.2
34 Cygni . .		11 49 26.7	20 11 30.94	− 1 38.98	− 3.16	+ 1.27	+ 37 20 25.0	− 0 11.2	+ 3.5

a ζ assumed as 4° 1′ 1″; not 4° 1′ 11″.
b ζ assumed as 16° 21′ 8″.7; not 16° 21′ 38″.7.
c T. III assumed as 56m. 26s.2.; not 56m. 21s.2.
d Tr'sit over T. II assumed as rec'd over T. III.
e Observation marked as uncertain by d'Agelet but found correct.
f T. I assumed as 12s.; not 22s.
g ζ assumed as 41° 45′ 59″.5; not 41° 45′ 29″.5.
h Minute assumed as 18.

1783 JULY 27—Continued Zero corr. = + 1′ 48″. 0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	37 γ Cygni		11 54 5.6	20 16 11.60	— 1 38.98	— 3.42	+ 1.29	+ 39 32 36.2	— 0 9.0	+ 4.0
		6.7	12 6 24.8	28 31.82	1 38.96	4.28	+ 2.36	+ 45 55 34.5	2.8	+ 5.3
		6.7	9 54.2	32 1.79	1 38.96	3.73	+ 1.43	+ 42 3 24.0	6.6	+ 4.5
		6.7	12 4.7	34 12.65	1 38.96	3.82	+ 1.48	+ 42 40 18.6	6.0	+ 4.6
	50 a "							+ 44 29 2.8	4.2	+ 5.0
	12 γ Delphini		16 11.1	38 19.72	1 38.95	1.14	— 1.54	+ 15 20 5.6	36.3	— 1.9
		7	20 13.5	42 22.78	1 38.95	1.28	— 1.42	+ 17 13 56.4	33.9	— 1.7
	31 r Vulpeculæ		22 23.3	44 32.94	1 38.95	2.04	— 0.04	+ 26 16 21.0	22.8	+ 0.7
	32 q "		24 52.4	47 2.45	1 38.95	2.13	+ 0.28	+ 27 13 6.8	21.8	+ 1.0
		7.8	27 45.3	49 55.82	1 38.94	1.98	— 0.23	+ 25 32 56.9	23.6	+ 0.6
a)		8.9	30 35.4	52 46.39	1 38.94	2.55	+ 1.37	+ 31 38 10.2	17.0	+ 2.4
		7	33 31.4	55 42.87	1 38.94	3.90	+ 1.56	+ 43 18 56.0	5.3	+ 4.7
		7	35 44.8	20 57 56.64	1 38.94	4.28	+ 2.39	+ 45 58 56.6	2.7	+ 5.3
	63 f² Cygni		38 39.2	21 0 51.52	1 38.93	4.39	+ 2.66	+ 46 45 10.4	2.0	+ 5.4
		7.8	42 3.8	4 16.68	1 38.93	2.28	+ 0.90	+ 28 48 29.5	20.1	+ 1.5
	64 ζ "		43 12.6	5 25.67	1 38.93	2.33	+ 1.07	+ 29 19 18.0	19.5	+ 1.6
	65 τ "		45 37.9	7 51.37	1 38.93	3.14	+ 1.27	+ 37 6 3.5	11.4	+ 3.5
	67 "	5	12 48 23.5	10 37.42	1 38.92	3.29	+ 1.27	+ 38 27 57.9	10.1	+ 3.8
		7.8	13 2 3.5	24 19.66	1 38.91	1.70	— 0.95	+ 22 25 23.4	27.3	— 0.4
		7	5 5.7	27 22.36	1 38.91	1.80	— 0.77	+ 23 28 17.6	26.1	— 0.1
		7.8	8 25.7	30 42.91	1 38.90	1.89	— 0.52	+ 24 30 24.8	24.9	+ 0.2
		8	10 50.3	33 7.91	1 38.90	1.59	— 1.15	+ 20 56 40.0	29.1	— 0.8
		8	11 3.8	33 21.45	1 38.90	1.56	— 1.18	+ 20 36 17.0	29.5	— 0.9
	9 g Pegasi		13 41.0	35 59.07	1 38.90	1.21	— 1.48	+ 16 20 39.0	35.1	— 1.8
		7.8	16 11.3	38 29.78	1 38.89	1.20	— 1.48	+ 16 10 54.8	35.2	— 1.8
	13 "		19 15.0	41 33.98	1 38.89	1.21	— 1.48	+ 16 15 59.6	35.2	— 1.8
	16 "		22 36.1	44 55.63	1 38.89	1.92	— 0.41	+ 24 53 25.4	24.4	+ 0.4
		8.9	25 1.0	47 20.93	1 38.89	2.76	+ 1.39	+ 33 43 42.0	14.9	+ 2.8
		7.8	28 28.2	50 48.70	1 38.88	2.28	+ 0.90	+ 28 46 58.0	20.1	+ 1.5
		8	30 31.2	52 52.04	1 38.88	2.43	+ 1.25	+ 30 23 33.6	18.4	+ 2.0
			34 21.3	21 56 42.77	1 38.88	2.57	+ 1.38	+ 31 52 20.7	16.8	+ 2.5
	27 "		39 42.3	22 2 4.65	1 38.87	2.59	+ 1.39	+ 32 5 44.4	16.6	+ 2.5
	1 Lacertæ		45 51.3	8 14.66	1 38.87	3.08	+ 1.29	+ 36 39		
		6	57 22.3	19 47.55	1 38.85	— 2.02	— 0.13	+ 25 53 55.5	0 23.3	+ 0.7
		6	13 59 18.9	21 44.47	1 38.85	+ 0.29	+ 1.57	— 4 1 19.6	1 12.3	— 0.6
		7	14 4 0.5	26 26.84	1 38.85	— 2.28	+ 0.91	+ 28 49 5.8	0 20.1	+ 1.5
	44 η Pegasi		12 6.6	34 34.27	1 38.84	2.30	+ 1.00	+ 29 4 4.1	19.9	+ 1.6
	46 ξ "		15 8.6	37 36.77	1 38.84	— 0.81	— 2.89	+ 11 2 54.4	0 42.8	— 1.9
	76 δ Aquarii		22 16.7	44 46.04	1 38.83	+ 1.26	+ 1.64	— 16 57 38.4	2 2.0	— 0.5
	Fomalhaut		24 42.2	47 11.94	1 38.83	2.46	+ 5.05	— 30 42 39.1	4 48.3	— 6.0
		5.6	26 45.2	49 15.28	1 38.83	2.45	+ 5.02	— 30 33 57.2	4 44.3	— 6.0
	82 Aquarii		30 24.8	52 55.48	1 38.82	+ 0.56	+ 1.88	— 7 44 10.2	1 23.3	— 0.5
		6.7	33 21.1	22 55 52.26	1 38.82	— 0.01	+ 0.31	+ 0 8 4.4	1 2.7	— 0.8
b)		6.7	37 51.3	23 0 23.20	1 38.81	1.31	— 1.41	+ 17 32 49.0	0 33.6	— 1.6
		6.7	41 44.9	4 17.44	1 38.81	2.23	+ 0.67	+ 28 14 45.0	20.7	+ 1.3
		6.7	43 1.3	5 34.05	1 38.81	2.25	+ 0.80	+ 28 34 16.6	20.4	+ 1.5
		7	46 20.0	8 53.29	1 38.81	2.37	+ 1.16	+ 29 49 29.8	19.0	+ 1.8
		6.7	48 8.3	10 41.89	1 38.80	2.75	+ 1.40	+ 33 35 3.5	15.1	+ 2.8
	12 Androm.		49 36.7	12 10.53	1 38.80	3.12	+ 1.28	+ 36 58 29.3	11.6	+ 3.5
		7.8	52 56.1	15 30.47	1 38.80	3.52	+ 1.33	+ 40 23 47.3	8.2	+ 4.1
	13 "		55 51.5	18 26.35	1 38.80	3.68	+ 1.40	+ 41 41 26.0	6.9	+ 4.4
		8.9	14 58 14.5	20 49.74	1 38.79	4.18	+ 2.08	+ 45 14 34.4	3.4	+ 5.1
		7.8	15 0 31.4	23 7.02	1 38.79	3.84	+ 1.50	+ 42 50 54.0	5.8	+ 4.7
		7	2 35.5	25 11.46	1 38.79	3.82	+ 1.48	+ 42 40 39.8	6.0	+ 4.7
	16 λ "	5.6	6 6.8	28 43.34	1 38.78	4.18	+ 2.08	+ 45 15 12.4	3.5	+ 5.1
c)		6.7	6 26.2	29 2.79	1 38.78	4.14	+ 1.98	+ 44 59		
		8	9 39.1	32 16.22	1 38.78	4.14	+ 1.98	+ 44 59 23.0	3.8	+ 5.1
		8	13 8.0	35 45.69	1 38.78	3.79	+ 1.47	+ 42 30 52.5	6.1	+ 4.6
	20 ψ "	6	14 25.5	37 3.40	1 38.78	4.16	+ 2.06	+ 45 11 15.0	3.5	+ 5.1
		7	19 27.4	42 6.13	1 38.77	3.35	+ 1.28	+ 38 58 12.6	9.8	+ 3.9
		6.7	23 44.0	46 23.43	1 38.77	4.30	+ 2.44	+ 46 7 7.5	2.6	+ 5.3
	84 ψ Pegasi		25 46.8	48 26.56	1 38.77	1.84	— 0.67	+ 23 54 54.1	25.7	0.0
		6	27 30.2	50 10.24	1 38.76	2.64	+ 1.39	+ 32 29 54.5	16.2	+ 2.6
		6.7	15 29 44.4	23 52 24.82	— 1 38.76	— 3.62	+ 1.37	+ 41 7 52.5	— 0 7.5	+ 4.3

a ζ assumed as 18° 5′; not 18° 6′. b ζ ass'd as 31° 18′ 16″.5; not 31° 18′ 46″.5. c ζ ass'd as that of a star 1′ 8″ from Lal. 46424.

1783 JULY 27—Continued Zero corr. = + 1′ 48″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q.	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	15 32 33.8	23 55 14.68	− 1 38.76	− 3.58	+ 1.36	+ 40 51 27.1	− 0 7.8	+ 4.3
	7	35 31.3	23 58 12.66	1 38.76	3.34	+ 1.28	+ 38 54 51.4	9.7	+ 3.9
22 Androm.		38 7.6	0 0 49.39	1 38.75	4.12	+ 1.92	+ 44 50 4.8	3.9	+ 5.1
	6.7	40 31.5	3 13.69	1 38.75	4.12	+ 1.92	+ 44 51 34.0	3.9	+ 5.1
36 Piscium		44 26.2	7 9.03	1 38.75	0.50	− 1.15	+ 7 1 16.5	49.3	− 1.6
	5.6	46 8.6	8 51.71	1 38.75	0.73	− 2.29	+ 9 59 15.4	44.6	− 1.8
28 Androm.		15 57 40.3	20 25.30	1 38.73	2.25	+ 0.79	+ 28 31 53.6	20.4	+ 1.5
a) 51 Piscium		16 0 10.1	22 55.51	1 38.73	0.42	− 0.86	+ 5 44 46.0	51.5	− 1.5
29 π Androm		4 16.6	27 2.68	1 38.73	2.64	+ 1.39	+ 32 29 56.4	16.2	+ 2.6
31 δ "		6 42.3	29 28.78	1 38.72	− 2.36	+ 1.13	+ 29 38 53.8	0 19.3	+ 1.8
Mars		15 30.2	38 18.12	1 38.72	+ 0.05	+ 0.63	− 0 44 20.8	1 4.8	− 0.7
b) 37 μ Ceti		23 39.7	46 28.96	1 38.71	− 3.16	+ 1.27	+ 37 17 32.3	0 11.3	+ 3.5
71 ε Piscium		30 34.2	53 24.60	1 38.70	0.48	− 1.08	+ 6 42 22.1	50.0	− 1.6
43 β Androm.		16 36 29.3	0 59 20.68	− 1 38.69	− 2.83	+ 1.37	+ 34 26 27.3	− 0 14.2	+ 2.9

1783 JULY 29 Zero corr. = + 1′ 46″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q.	ζ − φ	Refr.	q′
67 α Virginis	1	4 46 35.1	13 15 22.98	− 1 36.56	+ 0.74	+ 1.79	− 10 1 56.5	− 1 29.9	− 0.4
c) 85 η Ursæ Maj.		5 11 46.0	13 40 38.02	1 36.54	− 5.07	+ 3.45	+ 50 22 13.6	0 1.4	+ 5.7
Arcturus		5 38 30.7	14 7 27.12	1 36.52	1.56	− 1.21	+ 20 17 46.2	29.6	− 1.1
30 ζ Boötis		6 3 28.4	32 28.92	1 36.49	− 1.10	− 1.62	+ 14 38 49.4	0 37.1	− 1.9
9 α² Libræ		11 28.7	14 40 30.53	1 36.48	+ 1.13	+ 1.61	− 15 7 57.9	1 51.0	− 0.5
3 β Cor. Bor.		51 24.8	15 20 33.20	1 36.44	− 2.41	+ 1.17	+ 29 50 15.2	0 18.8	+ 1.9
5 α "		6 58 1.6	15 27 11.08	1 36.43	− 2.18	+ 0.36	+ 27 25 46.6	0 21.4	+ 1.1
2 ε Ophiuchi		7 39 12.4	16 8 28.64	1 36.40	+ 0.31	+ 1.60	− 4 9 42.8	1 12.3	− 0.6
Antares		48 24.4	17 42.15	1 36.39	+ 2.00	+ 3.12	− 25 54 44.8	3 17.2	− 2.6
27 β Herculis		7 53 16.9	22 35.45	1 36.38	− 1.69	− 1.01	+ 21 57 4.2	0 27.8	− 0.5
	6.5	8 4 21.8	33 42.17	1 36.37	− 1.98	− 0.31	+ 25 15 53.0	0 23.9	+ 0.4
20 Ophiuchi		10 6.1	39 27.40	1 36.36	+ 0.77	+ 1.77	− 10 23 24.5	1 31.5	− 0.4
23 "	6.5	15 15.4	44 37.54	1 36.36	0.42	+ 1.82	− 5 47 42.0	1 17.0	− 0.5
26 "		18 54.3	48 17.08	1 36.36	1.93	+ 2.50	− 24 43 33.8	3 2.6	− 2.1
666 Mayer	6.5	19 5.4	48 28.20	1 36.36	1.92	+ 2.47	− 24 37 22.0	1.6	− 2.0
28 Ophiuchi	6.7	23 35.1	52 58.63	1 36.35	+ 1.98	+ 2.79	− 25 17 52.8	3 9.7	− 2.3
33 "		25 59.3	55 23.23	1 36.35	− 1.04	− 1.67	+ 13 54 27.1	0 38.3	− 2.0
34 "		26 17.3	16 55 41.28	1 36.35	1.04	− 1.67	+ 13 52 23.2	38.4	− 2.0
	6.7	31 11.4	17 0 36.17	1 36.34	3.01	+ 1.32	+ 35 35 45.0	12.9	+ 3.2
	6.7	33 27.3	2 52.44	1 36.34	2.11	+ 0.09	+ 26 42 53.4	22.2	+ 0.9
	7.8	34 54.7	4 20.08	1 36.34	2.66	+ 1.39	+ 32 26 13.0	16.1	+ 2.6
	7.8	36 40.2	6 5.87	1 36.34	− 1.67	− 1.06	+ 21 40 29.3	0 28.1	− 0.6
45 "	3.4	45 36.5	15 3.64	1 36.33	+ 2.39	+ 4.73	− 29 36 38.8	4 19.9	− 5.1
76 λ Herculis		54 10.6	23 39.15	1 36.32	− 2.08	− 0.04	+ 26 15 43.0	0 22.8	+ 0.7
55 α Ophiuchi		8 57 5.3	26 34.33	1 36.32	0.95	− 1.86	+ 12 42 43.6	40.0	− 2.0
d)	6	9 4 41.6	34 11.88	1 36.31	2.56	+ 1.36	+ 31 23 23.3	17.3	+ 2.3
	6	9 39.9	39 11.00	1 36.30	2.58	+ 1.36	+ 31 34 34.0	17.1	+ 2.3
	7	12 11.7	41 43.22	1 36.30	2.87	+ 1.38	+ 34 20 10.1	14.2	+ 2.9
	7.8	15 11.2	44 43.21	1 36.30	3.15	+ 1.28	+ 36 53 18.8	11.6	+ 3.5
	8.9	17 37.7	47 10.11	1 36.30	3.38	+ 1.28	+ 38 51 3.8	9.7	+ 3.9
	9	21 55.7	51 28.82	1 36.29	3.26	+ 1.27	+ 37 48 30.2	10.7	+ 3.7
	7	23 15.4	52 48.74	1 36.29	3.09	+ 1.30	+ 36 17 26.6	12.2	+ 3.3
	7.8	25 46.0	55 19.75	1 36.28	2.76	+ 1.40	+ 33 17 47.2	15.2	+ 2.7
	6	28 25.2	17 57 59.39	1 36.28	1.66	− 1.06	+ 21 37 9.6	28.2	− 0.6
104 A Herculis		35 49.3	18 5 24.71	1 36.28	2.56	+ 1.34	+ 31 20 14.6	17.3	+ 2.3
	7	39 40.5	9 16.54	1 36.28	2.46	+ 1.23	+ 30 18 46.3	18.4	+ 2.0
e)	6	43 33.7	13 10.36	1 36.27	2.38	+ 1.11	+ 29 33 30.0	19.2	+ 1.8
108 "		9 44 39.6	14 16.43	1 36.27	2.41	+ 1.14	+ 29 44 33.0	19.0	+ 1.8
3 α Lyræ		10 1 36.9	31 16.52	1 36.25	− 3.35	+ 1.27	+ 38 33 53.2	0 10.0	+ 3.8
f) 6 ι Aquilæ		7 36.0	18 37 16.60	1 36.25	+ 0.36	+ 1.73	− 4 58 25.2	1 14.9	− 0.5
	7	45 46.2	19 15 33.07	1 36.21	− 0.82	− 2.87	+ 11 0 51.6	0 42.7	− 1.9
7 Vulpeculæ	6	51 47.0	21 34.86	1 36.20	1.51	− 1.24	+ 19 49 25.0	30.6	− 1.1
	6.5	10 54 55.7	19 24 44.08	− 1 36.20	− 1.31	− 1.42	+ 17 16 32.0	− 0 33.8	− 1.7

a ξ assumed as 43° 6′ 19″; not 43° 6′ 29″: and Micr. corr. as — 5; not + 5.
b Name assumed as 37 μ Andromedæ, not 37 μ Ceti.
c Div. assumed as 94 6 1; not 94 5 0.
d ξ assumed as 17° 27′ 39″; not 17° 27′ 9″.
e Min. assumed as 43m. and 44m.; not 42m. and 43m.
f ξ assumed as 53° 49′; not 53° 43′.

1783 JULY 29—Continued Zero corr. = + 1′ 46″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
9 Vulpeculæ	6	10 56 56.1	19 26 44.81	— 1 36.20	— 1.47	— 1.29	+ 19 17 30.5	— 0 31.2	— 1.3
	6.7	10 58 44.1	28 33.11	1 36.19	1.70	— 1.00	+ 22 5 42.4	27.7	— 0.5
12 Cygni . .		11 2 39.8	32 29.46	1 36.19	2.39	+ 1.13	+ 29 38 25.4	19.2	+ 1.8
	7.8	5 13.2	35 3.28	1 36.19	2.69	+ 1.39	+ 32 33 34.0	16.1	+ 2.6
	7	6 13.9	36 4.14	1 36.19	2.62	+ 1.38	+ 31 53 53.3	16.8	+ 2.5
	7.8	7 31.3	37 21.75	1 36.19	2.79	+ 1.40	+ 33 37 47.0	15.0	+ 2.8
	7	9 36.1	39 26.89	1 36.19	2.91	+ 1.37	+ 34 28 4.0	14.1	+ 3.0
53 α Aquilæ .		12 1.7	41 52.90	1 36.18	0.61	— 1.44	+ 8 17 36.6	47.0	— 1.7
	7.8	14 22.9	44 14.49	1 36.18	0.26	— 0.41	+ 3 50 21.2	54.9	— 1.3
	6.7	17 8.1	47 0.14	1 36.18	1.84	— 0.72	+ 23 44 27.3	25.8	0.0
21 η Cygni . .	4.5	19 58.3	49 50.81	1 36.18	2.91	+ 1.37	+ 34 29 28.6	14.1	+ 3.0
	7.8	22 32.6	52 25.53	1 36.17	3.22	+ 1.27	+ 37 29 59.0	11.0	+ 3.6
	7	25 57.1	55 50.59	1 36.17	1.25	— 1.46	+ 16 31		
	6.7	26 9.3	56 2.82	1 36.17	1.24	— 1.47	+ 16 28 34.5	34.9	— 1.8
17 Vulpeculæ		29 21.6	19 59 15.65	1 36.16	1.78	— 0.86	+ 22 58 45.0	26.7	— 0.2
28 b^2 Cygni . .		33 7.8	20 3 2.47	1 36.16	3.07	+ 1.30	+ 36 11 0.7	12.4	+ 3.3
21 Vulpeculæ		37 5.1	7 0.42	1 36.16	2.23	+ 0.58	+ 28 1 29.2	20.9	+ 1.3
24 " . .		39 15.6	9 11.28	1 36.15	1.87	— 0.65	+ 23 59 34.2	25.5	1.0
a) 34 Cygni . .		41 31.5	11 27.55	1 36.15	3.20	+ 1.27	+ 37 20 25.8	11.2	+ 3.5
37 γ " . .		46 10.8	16 7.62	1 36.15	3.48	+ 1.29	+ 39 32 36.2	9.0	+ 4.0
	7.8	49 17.8	19 15.13	1 36.14	1.50	— 1.25	+ 19 45 15.2	30.6	— 1.1
41 i " . .		52 14.1	22 11.91	1 36.14	2.39	+ 1.13	+ 29 37 52.5	19.2	+ 1.8
b) 47 l " . .		11 57 10.2	27 8.81	1 36.14	2.89	+ 1.37	+ 34 29 29.6	14.1	+ 3.0
	6.7	12 1 44.9	31 44.26	1 36.13	2.39	+ 1.11	+ 29 33 39.0	19.3	+ 1.8
50 α " . .		5 43.6	35 43.61	1 36.13	4.13	+ 1.81	+ 44 28 59.9	4.2	+ 5.0
54 λ " . .		10 37.5	40 38.31	1 36.13	3.02	+ 1.32	+ 35 40 31.8	12.9	+ 3.2
	6.7	13 55.3	43 56.65	1 36.12	2.18	+ 0.36	+ 27 26	21.6	+ 1.1
32 q Vulpeculæ	6.7	16 57.4	46 59.25	1 36.12	2.16	+ 0.26	+ 27 13 10.2	21.9	+ 1.0
c)	8.9	19 50.3	49 52.62	1 36.11	2.01	— 0.23	+ 25 33 1.5	23.7	+ 0.6
	9	22 40.7	52 43.49	1 36.11	2.59	+ 1.37	+ 31 38 12.0	17.1	+ 2.4
	8	25 36.2	55 39.47	1 36.11	3.96	+ 1.56	+ 43 18 58.6	5.3	+ 4.7
62 ξ Cygni . .		28 39.9	20 58 43.67	1 36.10	3.92	+ 1.52	+ 43 2 25.0	5.6	+ 4.7
63 f " . .		30 44.3	21 0 48.41	1 36.10	4.46	+ 2.67	+ 46 45 8.4	2.0	+ 5.4
d)	7.8	33 48.2	3 52.81	1 36.10	4.15	+ 1.82	+ 44 35 41.1	4.1	+ 5.0
65 τ " . .		37 43.7	7 48.96	1 36.10	3.17	+ 1.27	+ 37 6 2.2	11.5	+ 3.5
67 " . .	6.5	40 29.4	10 35.11	1 36.09	3.34	+ 1.27	+ 38 27 54.6	10.1	+ 3.8
	7.8	54 9.1	24 17.05	1 36.08	1.73	— 0.95	+ 22 25 24.0	27.4	— 0.4
	8	12 57 10.8	27 19.25	1 36.08	1.82	— 0.77	+ 23 28 20.0	26.2	— 0.1
	7.8	13 0 30.7	30 39.72	1 36.07	1.91	— 0.52	+ 24 30 25.0	25.0	+ 0.2
	7.8	2 55.2	33 4.62	1 36.07	1.61	— 1.14	+ 20 56 46.0	29.1	— 0.8
	7.8	3 9.6	33 19.06	1 36.07	1.58	— 1.18	+ 20 36 18.5	29.6	— 0.9
9 g Pegasi . .	4.5	5 46.3	35 56.19	1 36.07	1.23	— 1.48	+ 16 20 43.0	35.2	— 1.8
	6.7	8 17.4	38 27.70	1 36.07	1.22	— 1.48	+ 16 10 57.4	35.3	— 1.8
13 " . .		11 20.4	41 31.20	1 36.06	1.22	— 1.48	+ 16 16 6.3	35.2	— 1.8
	6.5	14 41.4	44 52.75	1 36.06	1.92	— 0.41	+ 24 53 26.4	24.5	+ 0.4
	9	17 6.3	47 18.05	1 36.05	2.80	+ 1.39	+ 33 43 45.0	14.9	+ 2.8
	9	20 33.5	50 45.82	1 36.05	2.31	+ 0.90	+ 28 46 59.7	20.1	+ 1.5
	7.8	23 41.3	53 54.14	1 36.05	1.12	— 1.58	+ 14 55 53.3	37.1	— 1.9
	8	23 57.1	54 9.98	1 36.05	1.11	— 1.59	+ 14 47		
e)	6.7	28 44.0	21 58 57.64	1 36.04	4.05	+ 1.68	+ 43 56 13.0	4.7	+ 4.9
	7.8	33 29.8	22 3 44.24	1 36.04	3.78	+ 1.42	+ 41 56 25.0	6.7	+ 4.5
	6.7	36 21.2	6 36.11	1 36.04	4.10	+ 1.76	+ 44 20 27.2	4.3	+ 4.9
1 Lacertæ .	6.7	40 51.6	11 7.25	1 36.03	3.13	+ 1.29	+ 36 39 34.4	11.9	+ 3.4
	7.8	43 56.4	14 12.56	1 36.03	3.47	+ 1.29	+ 39 33 0.8	9.0	+ 4.0
	7.8	48 32.7	18 49.62	1 36.02	3.09	+ 1.30	+ 36 19 6.4	12.2	+ 3.3
6 " . .	6.5	52 32.5	22 50.08	1 36.02	3.78	+ 1.42	+ 41 59 15.7	6.6	+ 4.5
	8	56 20.2	26 38.40	1 36.02	3.48	+ 1.29	+ 39 37 55.5	9.0	+ 4.1
8 " . .	6.7	13 57 37.1	27 55.51	1 36.02	3.34	+ 1.27	+ 38 29 28.5	10.1	+ 3.8
11 " . .		14 2 23.4	32 42.59	1 36.01	3.93	+ 1.53	+ 43 7 7.6	5.5	+ 4.7
13 " . .		5 48.2	36 7.95	1 36.01	3.61	+ 1.34	+ 40 39 26.2	7.9	+ 4.2
	6	7 55.3	38 15.40	1 36.00	3.96	+ 1.57	+ 43 22 40.5	5.3	+ 4.7
48 μ Pegasi . .		10 53,1	41 13.69	1 36.00	1.82	— 0.78	+ 23 26 25.6	26.2	— 0.1
	6	13 42.6	44 3.66	1 36.00	1.18	— 1.51	+ 15 40 42.0	36.1	— 1.8
	6	14 16 58.0	22 47 19.59	— 1 36.00	— 2.96	+ 1.33	+ 35 10 23.9	— 0 13.4	+ 3.1

a T. III assumed as 42m.; not 43m.
b T. I assumed as 56m.; not 54m.
c T. I assumed as 25s.; not 55s.
d Div. assumed as 4 8 10; not 4 8 11.
e T. III assumed as 29m. 16s.; not 29m. 8s.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
1783 JULY 29—Continued									Zero corr. = + 1′ 46″. 7.
		h m s	h m s	m s	s	s	° ′ ″	″	″
	7	14 21 40.5	22 52 2.86	− 1 35.99	− 2.42	+ 1.18	+ 29 54 0.0	− 0 19.0	+ 1.9
a) 54 α Pegasi . .		25 16.2	55 39.15	1 35.99	1.05	− 1.65	+ 14 1 35.8	38.5	− 2.0
	6.7	26 50.1	22 57 13.31	1 35.99	1.31	− 1.42	+ 17 19 46.0	33.9	− 1.7
	7.8	29 56.4	23 0 20.12	1 35.98	1.32	− 1.41	+ 17 32 53.0	33.6	− 1.6
	7	33 49.6	4 13.95	1 35.98	2.26	+ 0.68	+ 28 14 43.7	20.8	+ 1.3
	8	38 25.2	8 50.30	1 35.98	2.41	+ 1.17	+ 29 49 32.6	19.0	+ 1.9
	7	40 13.9	10 39.30	1 35.97	2.79	+ 1.40	+ 33 35 6.0	15.1	+ 2.8
12 Androm. .		14 41 41.8	23 12 7.44	− 1 35.97	− 3.16	+ 1.28	+ 36 58 30.6	− 0 11.6	+ 3.5
1783 JULY 30									Zero corr. = + 1′ 48″. 9.
24 Vulpeculæ		11 35 17.9	20 9 9.48	− 1 34.52	− 1.87	− 0.65	+ 23 59 31.2	− 0 25.5	0.0
b) 35 m Cygni . .	.	38 6.2	11 58.40	1 34.52	2.87	+ 1.38	+ 34 17 14.0	14.3	+ 2.9
37 γ " . .		42 13.6	16 6.32	1 34.51	3.47	+ 1.29	+ 39 32 38.2	9.0	+ 4.0
.	7.8	46 1.6	19 54.94	1 34.51	3.48	+ 1.29	+ 39 40 19.4	8.9	+ 4.0
·41 i " .		48 17.1	22 10.81	1 34.50	2.39	+ 1.12	+ 29 37 51.0	19.2	+ 1.8
·47 l " . .		53 12.3	27 6.82	1 34.50	2.90	+ 1.37	+ 34 29 29.8	14.1	+ 3.0
	7	11 57 47.7	31 42.97	1 34.49	2.39	+ 1.11	+ 29 33 36.9	19.2	+ 1.8
50 α " . .		12 1 46.0	35 41.92	1 34.49	4.13	+ 1.79	+ 44 28 59.2	4.2	+ 5.0
54 λ " . .	6	6 40.4	40 37.12	1 34.48	3.02	+ 1.32	+ 35 40 31.0	12.9	+ 3.2
c)	8.9	8 21.0	42 17.99	1 34.48	3.48	+ 1.29	+ 39 35 20.0	9.0	+ 4.0
	6.7	9 58.1	43 55.36	1 34.48	2.18	+ 0.36	+ 27 25 26.5	21.6	+ 1.1
32 q Vulpeculæ	6	12 13 0.2	20 46 57.96	− 1 34.48	− 2.16	+ 0.28	+ 27 13 10.8	− 0 21.9	+ 1.0
1783 AUGUST 17									Zero corr. = + 1′ 46″. 5.
d) 54 α Pegasi . .	2	13 10 14.0	22 55 19.19	− 1 15.26	− 1.05	− 1.65	+ 14 1 33.8	− 0 38.7	− 2.0
	7	20 37.2	23 5 44.10	1 15.26	2.13	+ 0.14	+ 26 52 16.0	22.5	+ 1.0
61 " . .		21 24.6	6 31.63	1 15.25	2.15	+ 0.21	+ 27 2 48.0	22.3	+ 1.0
	7.8	23 34.2	8 41.59	1 15.25	2.37	+ 1.06	+ 29 15 22.6	19.9	+ 1.6
12 Androm. .		26 39.2	11 47.10	1 15.25	3.18	+ 1.28	+ 36 58 37.8	11.7	+ 3.5
67 Pegasi . .	7.8	29 21.1	14 29.44	1 15.25	2.57	+ 1.34	+ 31 19 11.0	17.6	+ 2.2
69 " . .		33 6.2	18 15.16	1 15.24	1.87	− 0.66	+ 23 57 30.6	25.9	0.0
14 Androm. .		36 50.1	21 59.67	1 15.24	3.30	+ 1.27	+ 38 1 16.8	10.7	+ 3.7
15 " . .		40 13.4	25 25.53	1 15.24	3.42	+ 1.28	+ 39 1 1.6	9.7	+ 3.9
16 λ " . .		43 9.1	28 19.71	1 15.24	4.26	+ 2.08	+ 45 15 23.4	3.5	+ 5.1
19 κ " . .		45 55.5	31 6.57	1 15.24	3.94	+ 1.53	+ 43 6 24.8	5.6	+ 4.7
20 ψ " . .		51 28.4	36 40.38	1 15.24	4.24	+ 2.06	+ 45 11 20.2	3.6	+ 5.1
81 φ Pegasi . .		13 57 36.2	42 49.19	1 15.23	1.37	− 1.40	+ 17 54 0.8	33.4	− 1.5
	7	14 1 46.1	46 59.77	1 15.23	1.66	− 1.09	+ 21 25 25.6	29.0	− 0.7
85 " . .		6 57.2	52 11.72	1 15.22	2.05	− 0.14	+ 25 54 49.4	23.6	+ 0.7
		11 27.5	56 42.76	1 15.22	2.22	+ 0.49	+ 27 48 13.0	21.5	+ 1.2
21 α Androm. .		13 16.5	23 58 32.06	1 15.22	2.23	+ 0.51	+ 27 52 18.8	21.4	+ 1.3
88 γ Pegasi . .		14 18 9.3	0 3 25.66	− 1 15.22	− 1.05	− 1.66	+ 13 57 47.4	0 38.9	− 2.0
1783 AUGUST 20									Zero corr. · + 1′ 48″. 7.
58 ε Herculis .		6 57 22.7	16 53 16.30	− 1 12.61	− 2.58	+ 1.33	+ 31 13 54.4	− 0 17.5	+ 2.2
35 η Ophiuchi .		7 3 15.2	16 59 9.76	1 12.60	+ 1.17	+ 1.63	− 15 26 27.8	1 53.6	− 0.5
37 " . .	6	7 37.8	17 3 33.08	1 12.60	− 0.79	− 2.80	+ 10 50 32.5	0 43.0	− 1.9
64 α Herculis .		10 7.7	6 3.39	1 12.60	1.11	− 1.60	+ 14 37 52.0	37.4	− 1.9
74 " . .		19 33.7	15 30.90	1 12.59	4.46	+ 2.55	+ 46 25 57.6	2.3	+ 5.3
76 λ " . .		27 17.2	23 15.72	1 12.58	2.10	− 0.04	+ 26 15 44.8	22.9	+ 0.7
	6.7	30 5.2	26 4.18	1 12.58	1.27	− 1.46	+ 16 38 38.4	34.7	- 1.7
	7	36 27.8	32 27.83	1 12.58	0.33	− 0.54	+ 4 28 30.1	53.9	− 1.3
60 β Ophiuchi .		38 1.9	34 2.19	1 12.58	0.35	− 0.58	+ 4 39 21.7	53.5	− 1.4
	7	7 41 35.8	17 37 36.68	− 1 12.57	− 2.79	+ 1.40	+ 33 18 16.3	− 0 15.3	+ 2.7

a Div. assumed as 37 2 5; not 37 2 3.
b ζ assumed as 14° 33′ 51″; not 14° 33′ 11″.
c Transits discordant.
d ζ assumed as 34° 49′; not 34° 44′.

1783 AUGUST 20—Continued Zero corr. = + 1′ 48″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
87 Herculis .	5	7 45 17.5	17 41 18.99	− 1 12.57	− 2.04	− 0.20	+ 25 40 58.3	− 0 23.6	+ 0 6
	6.5	47 13.1	43 14.91	1 12.57	2.39	+ 1.08	+ 29 22 3.4	19.5	+ 1.6
	8	49 22.5	45 24.66	1 12.57	2.66	+ 1.39	+ 32 3 3.0	16.6	+ 2.5
89 " . .		51 54.5	47 57.08	1 12.56	2.08	− 0.09	+ 26 4 23.8	23.2	+ 0.7
92 ξ " . .		54 33.7	50 36.72	1 12.56	2.39	+ 1.06	+ 29 15 30.4	19.6	+ 1.6
95 " . .	5.6	57 32.2	53 35.71	1 12.56	1.69	− 1.07	+ 21 35 16.6	28.4	− 0.6
		7 57 32.9	53 36.41	1 12.56	1.69	− 1.07	+ 21 35 16.6	28.4	− 0.6
	7	8 1 38.3	17 57 42.48	1 12.56	0.18	− 0.19	+ 2 27 21.0	57.7	− 1.1
	6.7	4 14.3	18 0 18.91	1 12.55	0.23	− 0.30	+ 3 5 35.0	56.5	− 1.2
	6.7	5 1.6	1 6.34	1 12.55	0.25	− 0.33	+ 3 16 48.0	56.1	− 1.2
104 A " . .		8 55.9	5 1.26	1 12.55	− 2.59	+ 1.34	+ 31 20 17.3	0 17.4	+ 2.3
a) 19 δ Sagittarii .		12 9.6	8 15.49	1 12.55	+ 2.44	+ 4.82	− 29 51 34.2	4 27.6	− 5.5
b) 22 λ " . .		19 38.4	15 45.52	1 12.54	+ 2.03	+ 2.90	− 25 30 6.2	3 13.6	− 2.4
	6.7	28 53.6	25 2.24	1 12.53	− 1.84	− 0.78	+ 23 26 45.2	0 26.2	− 0.1
	6.7	31 37.0	27 46.09	1 12.53	1.84	− 0.79	+ 23 25 13.6	26.2	− 0.1
3 α Lyræ . .		34 42.9	30 52.50	1 12.53	− 3.40	+ 1.27	+ 38 33 56.4	0 10.0	+ 3.8
5 Aquilæ .		40 20.8	36 31.32	1 12.52	+ 0.09	+ 0.81	− 1 11 13.6	1 5.5	− 0.7
c)	7	43 39.0	39 50.08	1 12.52	− 0.05	+ 0.18	+ 0 35 35.8	1 1.6	− 0.9
	7	45 40.6	41 52.00	1 12.52	0.80	− 2.75	+ 10 43 9.1	0 43.4	− 1.9
	8	47 11.3	43 22.95	1 12.52	1.03	− 1.69	+ 13 42 9.0	38.9	− 2.0
113 Herculis .	6.5	50 41.0	46 53.22	1 12.51	1.75	− 0.96	+ 22 21 39.8	27.5	− 0.4
	6	53 57.5	50 10.26	1 12.51	2.72	+ 1.39	+ 32 36 35.2	16.1	+ 2.6
14 γ Lyræ . .	3.4	8 55 53.3	52 6.38	1 12.51	2.69	+ 1.39	+ 32 22 37.4	16.3	+ 2.5
17 ζ Aquilæ .		9 0 30.6	18 56 44.44	1 12.51	1.02	− 1.71	+ 13 32 10.0	39.2	− 2.0
d) 17 Lyræ .	6	4 15.2	19 0 29.65	1 12.50	2.67	+ 1.39	+ 32 8 45.2	16.6	+ 2.5
21 Aquilæ .	6	7 47.1	4 2.13	1 12.50	0.15	− 0.09	+ 1 55 35.3	58.9	− 1.0
	6.7	10 29.5	6 44.97	1 12.50	1.11	− 1.59	+ 14 41 59.8	37.5	− 1.9
	6	11 55.4	8 11.10	1 12.50	1.63	− 1.14	+ 20 59 56.5	29.2	− 0.8
28 A " . .	6	14 34.5	10 50.64	1 12.49	0.90	− 2.60	+ 11 58 8.0	41.5	− 2.0
	6	19 21.4	15 38.32	1 12.49	1.53	− 1.24	+ 19 50 8.2	30.6	− 1.1
	6	20 57.1	17 14.28	1 12.49	1.53	− 1.24	+ 19 50 5.0	30.6	− 1.1
e) 5 Vulpeculæ	6.5	21 46.1	18 3.42	1 12.49	1.52	− 1.26	+ 19 39 33.0	30.9	− 1.2
6 " . .	4.5	24 40.2	20 57.99	1 12.48	1.92	− 0.58	+ 24 12 55.0	25.3	0.0
f) 6 β Cygni . .		30 40.2					+ 33 58 36.1	14.7	+ 2.9
12 φ " . .		35 45.8	32 5.42	1 12.48	2.42	+ 1.12	+ 29 38 26.0	19.3	+ 1.8
	7	38 28.6	34 48.67	1 12.48	1.75	− 0.96	+ 22 19 46.5	27.7	− 0.4
53 α Aquilæ .		45 8.4	19 41 29.57	1 12.47	0.62	− 1.45	+ 8 17 35.4	47.4	− 1.7
	6	37 22.7	22 34 12.16	1 12.32	0.73	− 2.16	+ 9 48 11.6	45.1	− 1.8
14 Lacertæ	6	45 3.4	41 54.12	1 12.32	3.66	+ 1.35	+ 40 46 56.5	7.9	+ 4.2
51 Pegasi . .		51 15.5	48 7.24	1 12.31	1.52	− 1.26	+ 19 35 29.0	31.1	− 1.2
	7.8	55 1.4	51 53.76	1 12.31	1.03	− 1.69	+ 13 41 42.2	39.1	− 2.0
54 α " . .		12 58 22.8	22 55 15.71	1 12.31	1.06	− 1.65	+ 14 1 34.6	38.6	− 2.0
58 n " . .		13 3 30.3	23 0 24.05	1 12.30	0.65	− 1.53	+ 8 38 16.5	46.8	− 1.8
	6.7	8 19.1	5 13.64	1 12.30	1.80	− 0.87	+ 22 54 19.1	27.1	− 0.2
	6.7	13 21.2	10 16.57	1 12.30	2.83	+ 1.40	+ 33 35 7.4	15.2	+ 2.8
64 " . .	6.5	15 42.2	12 37.96	1 12.29	2.52	+ 1.27	+ 30 36 13.4	18.3	+ 2.0
	7	19 16.0	16 12.35	1 12.29	1.86	− 0.71	+ 23 44 44.8	26.0	0.0
g) 69 " . .		21 16.4	18 13.08	1 12.29	1.89	− 0.65	+ 23 57 30.0	25.8	0.0
14 Androm. .		24 59.7	21 56.98	1 12.28	3.32	+ 1.27	+ 38 1 18.8	10.6	+ 3.7
72 Pegasi . .		27 32.5	24 30.20	1 12.28	2.46	+ 1.20	+ 30 6 28.4	18.8	+ 1.9
74 " . .		31 0.7	27 58.97	1 12.28	1.19	− 1.51	+ 15 36 40.2	36.4	− 1.8
19 κ Androm. .	4	34 5.2	31 3.98	1 12.28	3.96	+ 1.53	+ 43 6 25.0	5.6	+ 4.7
	7	38 10.5	35 9.95	1 12.27	4.27	+ 2.05	+ 45 8 58.4	3.6	+ 5.1
20 ψ " . .		39 38.1	36 37.79	1 12.27	4.28	+ 2.06	+ 45 11 23.4	3.6	+ 5.1
	6	43 5.5	40 5.76	1 12.27	2.99	+ 1.33	+ 35 11 53.8	13.5	+ 3.1
	6.7	46 19.9	43 20.69	1 12.27	3.05	+ 1.31	+ 35 43 44.8	13.0	+ 3.2
	7	49 12.6	46 13.86	1 12.26	1.54	− 1.23	+ 19 56 26.8	30.7	− 1.1
84 ψ Pegasi . .		50 58.9	48 0.45	1 12.26	1.89	− 0.67	+ 23 55 2.8	25.9	0.0
	6.7	53 34.8	50 36.78	1 12.26	2.04	− 0.19	+ 25 41 38.3	23.8	+ 0.6
	6	13 57 48.1	54 50.77	1 12.26	2.80	+ 1.40	+ 33 25 22.0	15.3	+ 2.7
21 α Androm. .		14 1 26.2	23 58 29.47	1 12.25	2.25	+ 0.50	+ 27 52 15.4	21.4	+ 1.3
88 γ Pegasi . .		6 19.1	0 3 23.17	1 12.25	1.06	− 1.66	+ 13 57 42.7	38.8	− 2.0
24 θ Androm. .		14 10 0.8	0 7 5.48	− 1 12.25	− 3.24	+ 1.27	+ 37 27 5.8	− 0 11.2	+ 3.6

a Micr. corr. assumed as + 3; not − 3.
b Micr. corr. assumed as + 3; not − 3.
c T. III assumed as 44m. 2s.; not 44m. 7s.
d Div. assumed as 17 13 2; not 17 13 1.
e Min. assumed as 21m.; not 20m.
f Observation of Right-ascension worthless; not 6 β Cygni, but 8 Cygni.
g Div. assumed as 26 8 15 + 5; not 26 8 11 − 5: and ζ ass'd as 24° 53′ 36″; not 24° 53′ 26″.

1783 AUGUST 20—Continued Zero corr. = + 1′ 49″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ′	′ ″	″
	7	14 12 32.2	0 9 37.29	— 1 12.25	— 3.50	+ 1.29	+ 39 29 59.5	— 0 9.2	+ 4.0
a)	7	15 47.2	12 52.82	1 12.24	4.00	+ 1.56	+ 43 17 33.0	5.4	+ 4.7
	6.7	16 48.1	13 53.89	1 12.24	3.96	+ 1.52	+ 43 1 57.4	5.7	+ 4.7
	6	20 48.9	17 55.35	1 12.24	3.98	+ 1.54	+ 43 9 52.0	5.5	+ 4.7
	7	23 46.7	20 53.64	1 12.24	3.92	+ 1.49	+ 42 43 6.2	6.0	+ 4.7
	7	28 9.0	25 16.66	1 12.23	4.69	+ 2.96	+ 47 47 40.0	1.0	+ 5.5
	6	31 23.5	28 31.69	1 12.23	4.72	+ 3.06	+ 48 7 43.6	0.7	+ 5.5
	7.8	36 22.0	33 31.01	1 12.23	2.66	+ 1.39	+ 32 5 47.0	16.8	+ 2.5
59 Piscium .	6	39 55.2	37 4.79	1 12.22	1.41	— 1.35	+ 18 22 23.4	32.8	— 1.5
	7	44 18.0	41 28.41	1 12.22	2.72	+ 1.40	+ 32 41 11.5	16.1	+ 2.6
	6.7	46 57.0	44 7.75	1 12.22	4.63	+ 2.88	+ 47 28 12.0	1.3	+ 5.4
	6.7	50 15.7	47 26.99	1 12.21	3.36	+ 1.27	+ 38 16 27.2	10.4	+ 3.7
	6	54 42.8	51 54.82	1 12.21	4.43	+ 2.46	+ 46 10 43.2	2.6	+ 5.3
	7	14 58 43.2	0 55 55.88	1 12.21	4.77	+ 3.11	+ 48 21 43.2	0.5	+ 5.5
	6	15 4 8.8	1 1 22.37	1 12.20	4.13	+ 1.71	+ 44 9 0.6	4.6	+ 4.9
b)	6.7	7 45.6	4 59.76	1 12.20	4.55	+ 2.79	+ 46 54 4.2	1.9	+ 5.4
	6	10 34.0	7 48.62	1 12.20	3.12	+ 1.30	+ 36 12 52.7	12.5	+ 3.3
46 Androm.	4.5	13 41.2	10 56.33	1 12.19	4.15	+ 1.76	+ 44 21 27.1	4.4	+ 4.9
	7.8	15 45.2	13 0.67	1 12.19	3.82	+ 1.42	+ 41 58 35.0	6.7	+ 4.5
93 ρ Piscium .		18 37.0	15 52.94	1 12.19	1.39	— 1.38	+ 18 1 13.8	33.3	— 1.5
99 η " . .		23 54.8	21 11.61	1 12.18	1.06	— 1.63	+ 14 12 25.6	38.6	— 2.0
	7	27 6.5	24 23.83	1 12.18	1.32	— 1.42	+ 17 19 50.9	34.2	— 1.7
c) 102 π " . .		29 37.6	26 55.34	1 12.18	1.83	— 2.88	+ 11 0 47.6	43.2	— 1.9
	7	33 12.9	30 31.23	1 12.18	1.94	— 0.49	+ 24 37 27.9	25.1	+ 2.0
	6.7	35 27.4	32 46.11	1 12.18	2.56	+ 1.31	+ 31 4 12.4	17.9	+ 2.2
54 Ceti . .	6.7	43 19.7	40 39.70	1 12.18	0.74	— 2.26	+ 9 56 55.8	45.0	— 1.8
d) 6 β Arietis . .		46 38.2	43 58.74	1 12.17	1.52	— 1.25	+ 19 43 23.4	31.0	— 1.1
9 λ " . .		49 48.4	47 9.46	1 12.17	1.75	— 0.93	+ 22 30 43.6	27.6	— 0.3
57 γ Androm. .		54 34.8	51 56.64	1 12.16	3.73	+ 1.37	+ 41 15 10.0	7.4	+ 4.3
13 α Arietis . .		15 58 53.5	56 16.05	1 12.16	1.75	— 0.95	+ 22 24 33.0	27.7	— 0.4
e) 15 " . .	7	16 2 32.2	1 59 55.35	1 12.15	1.42	— 1.36	+ 18 27 5.5	32.7	— 1.4
17 " . .		4 35.0	2 1 58.49	1 12.15	1.56	— 1.22	+ 20 9 55.4	30.5	— 1.1
22 θ¹ " . .		9 58.2	7 22.59	1 12.15	1.45	— 1.32	+ 18 52 18.6	32.2	— 1.3
	7	13 45.4	11 10.40	1 12.14	1.70	— 1.03	+ 21 51 17.8	28.4	— 0.5
	8	16 42.3	14 7.79	1 12.14	2.34	+ 0.92	+ 28 52 10.2	20.3	+ 1.6
12 c Trianguli .		19 20.2	16 46.12	1 12.14	2.32	+ 0.85	+ 28 40 7.1	20.5	+ 1.5
14 " . .	6.5	22 45.3	20 11.78	1 12.13	2.98	+ 1.33	+ 35 8 59.1	13.6	+ 3.1
f)	7	25 47.9	23 14.88	1 12.13	3.40	+ 1.27	+ 38 40 42.8	10.0	+ 3.8
	6	28 45.4	26 12.87	1 12.13	3.17	+ 1.29	+ 36 45 5.0	12.0	+ 3.5
33 Arietis . .	6	31 51.7	29 19.68	1 12.13	2.08	— 0.08	+ 26 5 50.3	23.4	+ 0.7
34 μ " . .		33 59.2	31 27.53	1 12.12	1.47	— 1.31	+ 19 3 34.8	32.0	— 1.3
37 ο " . .		36 25.2	33 53.93	1 12.12	1.08	— 1.62	+ 14 22 5.4	38.4	— 2.0
	6.5	41 3.2	38 32.69	1 12.12	4.38	+ 2.34	+ 45 54 13.4	2.9	+ 5.3
45 " . .		47 25.5	44 56.04	1 12.12	1.33	— 1.41	+ 17 25 29.0	34.2	— 1.7
48 ε " . .		50 36.1	48 7.16	1 12.11	1.58	— 1.20	+ 20 26 34.4	30.2	— 1.0
92 α Ceti . .		54 40.7	52 12.43	1 12.11	0.24	— 0.31	+ 3 13 11.7	57.0	— 1.2
g) 26 β Persei . .		16 57 52.2	2 55 24.45	1 12.10	3.57	+ 1.31	+ 40 4 43.9	8.6	+ 4.1
α " . .		17 12 37.7	3 10 12.38	— 1 12.09	— 4.94	+ 3.25	+ 49 2 26.2	— 0 0.2	+ 5.6

1783 AUGUST 21 Zero corr. = + 1′ 49″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	6.7	11 29 42.2	21 30 17.09	— 1 11.05	— 3.38	+ 1.27	+ 38 19 18.1	— 0 10.3	+ 3.7
76 Cygni . .	6	33 32.2	34 7.72	1 11.05	3.56	+ 1.30	+ 39 48 3.6	8.8	+ 4.1
77 " . .	6	34 20.0	34 55.65	1 11.05	3.60	+ 1.31	+ 40 4 2.5	8.6	+ 4.1
	6	35 4.5	35 40.27	1 11.04	3.60	+ 1.32	+ 40 8 40.8	8.5	+ 4.1
81 π " . .		39 27.0	40 3.49	1 11.04	4.80	+ 3.09	+ 48 16 55.5	0.6	+ 5.5
15 Pegasi . .		43 28.0	44 5.15	1 11.03	2.25	+ 0.46	+ 27 45 46.0	21.3	+ 1.3
17 " . .		47 1.3	47 39.03	1 11.03	0.84	— 2.89	+ 11 2 20.0	42.8	— 1.9
20 " . .		51 9.9	51 48.31	1 11.03	0.92	— 2.47	+ 12 4 20.1	41.3	— 2.0
22 ν " . .		55 19.8	55 58.89	1 11.03	0.30	— 0.45	+ 3 59 41.8	54.9	— 1.3
24 ι " . .		11 57 31.8	21 58 11.25	— 1 11.03	— 1.93	— 0.57	+ 24 16 21.6	— 0 25.2	+ 0.1

a T. I assumed as 16s.; not 6s.
b Div. assumed as 2 1 4; not 2 1 8.
c Min. assumed as 29m. and 30m.; not 30m. and 31m.
d Minute assumed as 46m; not 45m.
e ζ assumed as 30°; not 40°.
f ζ assumed as 10° 10′ 22″; not 10° 10′ 52″.
g ζ assumed as 8° 46′ 20″; not 8° 46′ 50″.

1783 AUGUST 21—Continued Zero corr. = + 1′ 49″.4.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	6	12 0 13.4	22 0 53.29	— 1 11.02	— 2.68	+ 1.39	+ 32 5 43.1	— 0 16.6	+ 2.5
29 π Pegasi . .	4.5	0 57.4	1 37.41	1 11.02	2.68	+ 1.39	+ 32 5 48.3	16.6	+ 2.5
	6	5 10.6	5 51.30	1 11.02	3.42	+ 1.27	+ 38 37 6.5	10.0	+ 3.8
1 Lacertæ .	5.6	7 6.8	7 47.82	1 11.02	3.18	+ 1.29	+ 36 38 56.8	11.9	+ 3.4
31 Pegasi . .		11 26.3	12 8.03	1 11.01	0.84	— 2.92	+ 11 6 11.8	42.8	— 1.9
4 Lacertæ .	6.5	16 18.3	17 0.84	1 11.01	4.76	+ 3.11	+ 48 21 4.8	0.5	+ 5.5
38 Pegasi . .		20 39.8	21 23.06	1 11.00	2.62	+ 1.35	+ 31 26 44.0	17.5	+ 2.3
7 Lacertæ .		22 55.4	23 40.03	1 10.99	4.95	+ 3.28	+ 49 8 32.5	0.3	+ 5.6
8 " . .	6.7	26 46.0	27 30.26	1 10.99	3.40	+ 1.27	+ 38 29 30.6	10.0	+ 3.8
10 " . .		30 . 3.9	30 48.70	1 10.99	3.33	+ 1.27	+ 37 54 2.7	10.7	+ 3.7
13 " . .		34 57.2	35 42.80	1 10.98	3.67	+ 1.34	+ 40 39 36.2	7.9	+ 4.2
14 " . .		41 6.7	41 53.31	1 10.98	3.69	+ 1.35	+ 40 46 55.8	7.8	+ 4.3
15 " . .		42 46.0	43 32.88	1 10.98	3.88	+ 1.44	+ 42 8 14.0	6.5	+ 4.5
16 " . .		47 0.0	47 47.58	1 10.97	3.64	+ 1.33	+ 40 25 22.6	8.2	+ 4.1
	7	51 15.2	52 3.48	1 10.97	4.16	+ 1.72	+ 44 11 11.6	4.5	+ 4.9
54 α Pegasi .		54 26.3	55 15.10	1 10.96	1.07	— 1.65	+ 14 1 34.2	38.6	— 2.0
a) 55 l " . .		56 31.7	22 57 20.84	1 10.96	0.62	— 1.42	+ 8 13 43.4	47.3	— 1.7
	7	12 59 56.4	23 0 46.10	1 10.96	4.83	+ 3.13	+ 48 27 0.2	0.4	+ 5.5
7 Androm. .		13 3 5.5	3 55.72	1 10.96	4.79	+ 3.07	+ 48 11 37.8	0.6	+ 5.5
	7	5 42.9	6 33.55	1 10.95	1.86	— 0.75	+ 23 34 14.5	26.2	0.0
b) 9 " . .	6	8 33.4	9 24.51	1 10.95	3.65	+ 1.33	+ 40 33 46.5	8.1	+ 4.2
10 " . .	6	9 59.1	10 50.46	1 10.95	3.71	+ 1.36	+ 40 52 1.6	7.8	+ 4.3
	7	14 17.0	15 9.07	1 10.94	2.42	+ 1.10	+ 29 30 2.4	19.5	+ 1.8
	6.7	17 57.5	18 50.17	1 10.94	1.45	— 1.33	+ 18 40 36.1	32.3	— 1.4
14 " . .		21 2.8	21 55.98	1 10.94	3.34	+ 1.27	+ 38 1 16.8	10.6	+ 3.7
76 Pegasi .	6.7	32 5.7	33 0.69	1 10.93	1.16	— 1.56	+ 15 7 3.4	37.1	— 1.9
	7.8	34 13.5	35 8.84	1 10.92	4.30	+ 2.05	+ 45 8 58.4	3.6	+ 5.1
20 ψ Androm. .		35 40.5	36 36.08	1 10.92	4.31	+ 2.06	+ 45 11 19.4	3.6	+ 5.1
	6	39 8.4	40 4.55	1 10.92	3.02	+ 1.33	+ 35 11 55.3	13.5	+ 3.1
	7	42 22.4	43 19.08	1 10.91	3.08	+ 1.31	+ 35 43 48.1	12.9	+ 3.2
	7	45 15.5	46 12.65	1 10.91	1.55	— 1.24	+ 19 56 25.5	30.6	— 1.1
84 ψ Pegasi . .		47 2.5	47 59.94	1 10.91	1.90	— 0.67	+ 23 55 1.4	25.8	0.0
	7	49 37.2	50 35.03	1 10.91	2.06	— 0.19	+ 25 41 36.0	23.8	+ 0.6
85 " . .	6.7	51 10.2	52 8.31	1 10.91	2.08	— 0.14	+ 25 54 49.0	23.5	+ 0.7
	6	53 50.8	54 49.35	1 10.90	2.83	+ 1.40	+ 33 25 23.0	15.3	+ 2.7
	6	55 40.0	56 38.86	1 10.90	2.26	+ 0.49	+ 27 48 9.0	21.4	+ 1.3
21 α Androm. .		13 57 28.7	23 58 27.87	1 10.90	2.26	+ 0.51	+ 27 52 14.6	21.4	+ 1.3
88 γ Pegasi . .		14 2 21.6	0 3 21.57	1 10.89	1.06	— 1.66	+ 13 57 45.2	38.7	— 2.0
24 θ Androm. .		6 3.5	7 4.08	1 10.89	3.28	+ 1.27	+ 37 27 6.2	11.2	+ 3.5
	7	8 35.5	9 36.49	1 10.89	3.52	+ 1.29	+ 39 29 59.2	9.1	+ 4.0
	7.8	11 50.3	12 51.82	1 10.88	4.03	+ 1.55	+ 43 17 32.0	5.4	+ 4.7
	6.7	12 51.3	13 52.99	1 10.88	3.99	+ 1.52	+ 43 2 3.8	5.7	+ 4.7
	6.5	16 52.2	17 54.56	1 10.88	4.01	+ 1.54	+ 43 9 56.0	5.5	+ 4.7
	7	19 49.2	20 52.03	1 10.88	3.95	+ 1.49	+ 42 43 7.0	6.0	+ 4.6
	6.7	24 11.8	25 15.35	1 10.87	4.72	+ 2.97	+ 47 47 38.5	1.0	+ 5.5
	6.5	25 15.3	26 19.02	1 10.87	4.02	+ 1.55	+ 43 15 43.9	5.4	+ 4.7
	6	27 26.9	28 30.98	1 10.87	4.78	+ 3.06	+ 48 7 48.4	0.7	+ 5.5
32 Androm.	6	29 36.4	30 40.84	1 10.87	3.37	+ 1.27	+ 38 14 23.0	10.4	+ 3.7
	7.8	32 25.2	33 30.10	1 10.87	2.69	+ 1.39	+ 32 5 44.0	16.8	+ 2.5
59 Piscium .	6.7	35 58.3	37 3.78	1 10.86	1.42	— 1.35	+ 18 22 26.3	32.8	— 1.5
64 " . .	6	37 46.6	38 52.38	1 10.86	1.21	— 1.51	+ 15 45 5.1	36.3	— 1.8
	7.8	40 21.4	41 27.60	1 10.86	2.75	+ 1.40	+ 32 41 9.6	16.1	+ 2.6
	6.7	42 59.7	44 6.33	1 10.86	4.66	+ 2.88	+ 47 28 11.9	1.3	+ 5.4
	7	46 18.9	47 26.09	1 10.85	3.37	+ 1.27	+ 38 16 29.4	10.4	+ 3.7
	7	50 45.0	51 52.92	1 10.85	4.45	+ 2.46	+ 46 10 38.5	2.6	+ 5.3
	7	14 54 46.5	0 55 55.08	1 10.84	4.82	+ 3.11	+ 48 21 38.0	0.5	+ 5.5
	6.7	15 0 11.2	1 1 20.67	1 10.84	4.15	+ 1.72	+ 44 9 3.4	4.6	+ 4.9
	7	3 48.1	4 58.16	1 10.83	4.57	+ 2.72	+ 46 54 4.4	1.9	+ 5.4
	6.7	6 37.4	7 47.92	1 10.83	3.14	+ 1.30	+ 36 12 52.2	12.5	+ 3.3
46 Androm. .		9 44.2	10 55.23	1 10.83	4.18	+ 1.76	+ 44 21 28.1	4.4	+ 4.9
	7.8	11 48.1	12 59.47	1 10.83	3.85	+ 1.42	+ 41 58 35.0	6.7	+ 4.5
93 ρ Piscium .		14 39.9	15 51.74	1 10.82	1.39	— 1.38	+ 18 1 15.8	33.3	— 1.5
99 η " . .		19 57.7	21 10.41	1 10.82	1.08	— 1.63	+ 14 12 24.8	38.5	— 2.0
	7	23 9.0	24 22.23	1 10.82	1.34	— 1.42	+ 17 19 52.4	34.2	— 1.7
	7	29 14.9	30 29.13	1 10.81	1.96	— 0.49	+ 24 37 25.2	25.1	+ 0.2
	7	15 31 30.2	1 32 44.81	— 1 10.81	— 2.58	+ 1.31	+ 31 4 15.6	— 0 17.9	+ 2.2

a ζ assumed as 40° 37′; not 40° 38′.

b Div. assumed as 8 13 7; not 8 13 9.

1783 SEPTEMBER 2 Zero corr. = + 1′ 48″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
64 α Herculis .	2.3	6 18 45.9	17 5 48.37	— 0 57.78	— 1.15	— 1.60	+ 14 37 52.2	— 0 37.4	— 1.9
75 ρ " . .		30 9.6	17 13.94	57.77	3.36	+ 1.27	+ 37 19 47.2	11.2	+ 3.5
55 α Ophiuchi .		38 49.4	25 55.16	57.77	0.99	— 1.86	+ 12 42 46.4	40.2	— 2.0
60 β " . .		46 39.9	33 46.94	57.76	0.36	— 0.59	+ 4 39 25.0	53.4	— 1.4
62 γ " . .		6 50 54.4	38 2.14	57.76	— 0.21	— 0.24	+ 2 47 22.4	0 56.9	— 1.2
64 ν " . .		7 0 54.0	48 3.38	57.76	+ 0.76	+ 1.80	— 9 44 13.0	1 29.6	— 0.4
94 υ Herculis .		4 3.6	51 13.50	57.76	— 2.56	+ 1.21	+ 30 11 40.9	0 18.6	+ 1.9
97 " . .		7 18.4	54 28.83	57.75	1.86	— 0.87	+ 22 54 43.0	26.7	— 0.2
72 s Ophiuchi .	4.5	10 55.4	58 6.43	57.75	0.74	— 1.95	+ 9 31 45.6	45.1	— 1.8
	7	11 4.3	17 58 15.35	57.75	0.73	— 1.89	+ 9 27		
104 A Herculis .	4.5	17 33.9	18 4 46.02	57.75	2.68	+ 1.34	+ 31 20 17.8	17.3	+ 2.3
	6.5	19 40.1	6 52.56	57.75	3.53	+ 1.28	+ 38 41 49.7	9.9	+ 3.8
	6.5	22 43.3	9 56.26	57.74	3.97	+ 1.43	+ 42 4 0.8	6.5	+ 4.5
	7.8	24 41.1	11 54.33	57.74	4.89	+ 3.02	+ 48 0 18.8	0 0.9	+ 5.5
59 d Serpentis .	6.7	29 52.5	17 6.63	57.74	0.01	+ 0.34	+ 0 4 12.0	1 2.8	— 0.8
	6.7	35 13.3	22 28.33	57.74	1.32	— 1.45	+ 16 46 19.6	0 34.6	— 1.7
	7	37 32.0	24 47.41	57.74	1.91	— 0.77	+ 23 26 45.2	26.1	— 0.1
3 α Lyræ . .		43 21.6	30 37.97	57.74	3.51	+ 1.27	+ 38 33 58.8	10.0	+ 3.8
111 Herculis .		51 11.5	38 29.16	57.73	1.42	— 1.39	+ 17 55 59.6	33.0	— 1.5
9 υ² Lyræ . .		55 29.9	42 48.27	57.73	2.78	+ 1.39	+ 32 17 15.0	16.4	+ 2.5
113 Herculis .		7 59 19.3	46 38.30	57.73	1.81	— 0.96	+ 22 21 39.3	27.5	— 0.4
11 Aquilæ .		8 2 50.0	50 9.58	57.73	1.04	— 1.74	+ 13 19 48.6	39.3	— 2.0
	6.7	8 6.5	18 55 26.95	57.73	1.68	— 1.15	+ 20 56 25.2	29.2	— 0.8
21 " . .		8 16 25.3	19 3 47.12	57.72	0.15	— 0.09	+ 1 55 35.3	58.8	— 1.0
.	6.7	9 23 55.5	20 11 28.40	57.69	3.70	+ 1.31	+ 40 2 21.0	8.6	+ 4.1
37 γ Cygni . .		27 56.0	15 29.55	57.69	3.63	+ 1.29	+ 39 32 41.8	9.1	+ 4.0
	10	31 44.2	19 18.37	57.68	0.80	— 2.48	+ 10 15 45.0	44.2	— 1.8
a) 1 Delphini .		33 23.7	20 58.14	57.68	0.79	— 2.41	+ 10 10 7.3	44.3	— 1.8
44 Cygni . .	6.7	36 12.6	23 47.50	57.68	3.22	+ 1.30	+ 36 11 26.5	12.4	+ 3.3
4 ζ Delphini .		38 38.0	26 13.30	57.68	1.09	— 1.67	+ 13 55 13.4	38.7	— 2.0
6 β " . .		40 50.5	28 26.16	57.68	1.08	— 1.67	+ 13 50 6.8	38.8	— 2.0
	7	45 31.6	33 8.03	57.68	4.38	+ 1.92	+ 44 52 44.0	3.9	+ 5.1
50 α Cygni . .		9 47 28.3	20 35 5.06	— 0 57.68	— 4.32	+ 1.80	+ 44 29 8.6	— 0 4.2	+ 5.0

1783 SEPTEMBER 6 Zero corr. = + 1′ 47″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
55 α Ophiuchi .	2.3	6 23 2.7	17 25 52.09	— 0 54.74	— 0.99	— 1.86	+ 12 42 45.9	— 0 40.3	— 2.0
60 β " . .		30 53.2	33 43.88	54.74	0.36	— 0.58	+ 4 39 25.4	53.5	— 1.4
62 γ " . .		35 7.5	37 58.88	54.73	0.21	— 0.24	+ 2 47 20.8	57.1	— 1.2
86 μ Herculis .		36 5.5	38 57.04	54.73	— 2.31	+ 0.50	+ 27 50 9.7	0 21.2	+ 1.3
64 ν Ophiuchi .		45 7.4	48 0.42	54.73	+ 0.76	+ 1.80	— 9 44 13.0	1 29.9	— 0.4
68 κ " . .		48 48.7	51 42.32	54.73	— 0.10	+ 0.02	+ 1 18 42.9	1 0.0	— 0.9
10 γ Sagittarii .		49 49.4	52 43.18	54.73	+ 2.57	+ 4.96	— 30 21 37.0	4 39.1	— 5.8
72 s² Ophiuchi .	4.5	55 8.7	58 3.35	54.73	— 0.74	— 1.94	+ 9 31 50.4	0 45.2	— 1.8
	7	6 55 17.5	17 58 12.17	54.73	0.73	— 1.90	+ 9 27 53.0	45.3	— 1.8
104 A Herculis .		7 1 47.2	18 4 42.94	54.73	2.67	+ 1.34	+ 31 20 20.0	17.4	+ 2.3
1 κ " . .		10 17.2	13 14.34	54.72	— 3.18	+ 1.31	+ 35 57 7.2	0 12.6	+ 3.3
733 Mayer . .	7	18 23.8	21 22.27	54.72	+ 1.46	+ 1.49	— 18 30 13.6	2 11.0	— 0.7
	8	20 49.2	23 48.07	54.72	1.48	+ 1.47	— 18 41 55.6	12.2	— 0.7
Saturn . .		23 42.7	26 42.05	54.72	+ 1.84	+ 1.82	— 22 50 39.6	2 44.5	— 1.5
	7	26 5.1	29 4.86	54.72	— 3.51	+ 1.27	+ 38 42 9.0	0 9.9	+ 3.8
3 α Lyræ . .		27 34.8	30 34.80	54.72	— 3.49	+ 1.27	+ 38 33 58.8	0 10.0	+ 3.8
3 n Aquilæ .		29 37.3	32 37.63	54.72	+ 0.65	+ 1.87	— 8 28 50.1	1 25.8	— 0.5
5 " . .	6	33 12.3	36 13.22	54.72	0.09	+ 0.81	— 1 11 11.6	5.7	— 0.7
	8	33 13.3	36 14.22	54.72	0.09	+ 0.81	— 1 11 20.5	5.7	— 0.7
7 " . .		37 37.0	40 38.64	54.71	0.27	+ 1.44	— 3 30 19.0	1 11.2	— 0.6
8 " . .		37 52.8	40 54.48	54.71	+ 0.27	+ 1.45	— 3 34		
112 Herculis .		40 57.9	44 0.09	54.71	— 1.70	— 1.11	+ 21 9 22.4	0 29.0	— 0.8
38 ζ Sagittarii .		46 35.7	49 38.82	54.71	+ 2.56	+ 4.90	— 30 7 37.7	4 34.1	— 5.5
39 ο " . .		49 31.5	52 35.10	54.71	1.77	+ 1.62	— 22 1 43.8	2 37.5	— 1.2
41 π " . .		54 41.6	18 57 46.05	54.71	1.71	+ 1.51	— 21 20 22.0	31.5	— 1.0
767 Mayer . .	8	7 57 19.7	19 0 24.58	54.71	1.76	+ 1.62	— 21 59 14.9	2 37.1	— 1.2
42 ψ Sagittarii .		8 0 1.5	19 3 6.82	— 0 54.71	+ 2.10	+ 2.96	— 25 35 19.4	— 3 14.6	— 2.4

a ζ assumed as 30° 40′ 56″; not 30° 41′ 16″: and Div. assumed as 41 4 3; not 41 4 4.

1783 SEPTEMBER 6—Continued Zero corr. = + 1′ 47″.7.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
43 d Sagittarii .		8 2 44.7	19 5 50.47	− 0 54.71	+ 1.53	+ 1.41	− 19 18 51.7	− 2 16.6	− 0.7
775 Mayer . .	7	4 26.1	7 32.15	54.70	1.25	+ 1.64	− 15 53 44.4	1 56.2	− 0.5
a) 47 χ^1 Sagittarii .		9 50.0	12 56.94	54.70	2.03	+ 2.60	− 24 53 32.5	3 6.4	− 2.2
b) 48 χ^2 " . .		9 57.3	13 4.26	54.70	2.02	+ 2.55	− 24 47 44.0	3 5.0	− 2.1
c)	6.7	13 57.0	17 5.30	54.70	2.80	+ 5.29	− 32 27 7.5	5 42.5	− 7.7
55 e^2 " . .		27 51.2	31 1.10	54.70	1.29	+ 1.66	− 16 36 41.4	2 0.0	− 0.5
Jupiter .		8 36 42.7	19 39 54.05	− 0 54.69	+ 1.78	+ 1.65	− 22 7 7.4	− 2 38.2	− 1.2

1783 SEPTEMBER 7 Zero corr. = + 1′ 47″.9.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
55 α Ophiuchi .	2.3	6 19 6.5	17 25 51.80	− 0 54.42	− 0.99	− 1.86	+ 12 42 47.2	− 0 40.3	− 2.0
60 β " . .		6 26 57.1	17 33 43.68	54.42	0.36	− 0.59	+ 4 39 26.7	53.6	− 1.4
	6	7 6 37.5	18 13 30.60	54.41	0.93	− 2.67	+ 11 55 6.8	41.4	− 2.0
	6.7	8 53.0	15 46.47	54.41	− 1.63	− 1.21	+ 20 19 37.5	0 29.9	− 1.0
Saturn .		19 45.9	26 41.16	54.40	+ 1.85	+ 1.82	− 22 50 40.8	2 44.5	− 1.5
3 α Lyræ . .		23 38.6	30 34.50	54.40	− 3.51	+ 1.27	+ 38 33 58.5	0 10.0	+ 3.8
	8.9	27 51.0	34 47.59	54.40	− 1.54	− 1.30	+ 19 14 42.2	0 31.3	− 1.3
32 ν^1 Sagittarii .	6	34 59.9	41 57.67	54.40	+ 1.87	+ 1.87	− 22 58 34.0	2 45.7	− 1.5
37 ξ^2 " . .		38 43.3	45 41.68	54.39	1.72	+ 1.51	− 21 21 36.2	2 31.5	− 1.0
38 ζ " . .		42 39.7	49 38.73	54.39	2.55	+ 4.89	− 30 7 22.1	4 33.5	− 5.5
40 τ " . .		47 15.1	18 54 14.88	54.39	2.33	+ 4.04	− 27 55 59.4	3 49.2	− 3.8
d) 767 Mayer . .	6	53 23.5	19 0 24.27	54.39	+ 1.78	+ 1.62	− 21 59 4.6	2 36.7	− 1.2
	7	7 57 16.4	4 17.82	54.39	− 1.71	− 1.11	+ 21 10 57.7	0 29.0	− 0.8
20 η Lyræ . .		8 0 19.2	7 21.12	54.39	3.53	+ 1.28	+ 38 45 26.5	9.8	+ 3.9
	7.8	3 51.3	10 53.79	54.39	3.53	+ 1.26	+ 38 42 57.0	9.8	+ 3.9
	6.7	8 58.5	16 1.83	54.38	3.33	+ 1.27	+ 37 8 53.1	11.4	+ 3.5
	7	11 31.2	18 34.95	54.38	3.29	+ 1.28	+ 36 48 7.0	11.8	+ 3.5
	7	15 33.9	22 38.32	54.38	3.18	+ 1.31	+ 35 48 58.0	12.8	+ 3.3
	6.7	16 49.7	23 54.34	54.38	3.16	+ 1.31	+ 35 45 26.6	12.8	+ 3.3
	7	19 56.5	27 1.65	54.38	3.47	+ 1.27	+ 38 16 26.6	10.3	+ 3.7
	7	23 12.3	30 17.98	54.38	3.42	+ 1.27	+ 37 52 54.2	10.7	+ 3.7
14 Cygni . .		26 15.7	33 21.88	54.38	3.99	+ 1.45	+ 42 17 55.8	6.3	+ 4.5
	6.7	8 27 32.0	19 34 38.39	54.38	4.04	+ 1.47	+ 42 33 15.7	6.1	+ 4.6
	8	9 28 0.6	20 35 16.93	54.36	1.87	− 0.85	+ 22 59 56.9	26.7	− 0.2
14 Delphini .		32 52.1	40 9.23	54.36	0.54	− 1.15	+ 7 3 25.2	49.3	− 1.6
	6.7	36 14.3	43 31.98	54.36	1.36	− 1.42	+ 17 12 24.3	34.0	− 1.7
17 " . .		39 2.3	46 20.44	54.35	1.01	− 1.81	+ 12 53 23.0	40.0	− 2.0
18 " . .		41 40.8	48 59.37	54.35	0.77	− 2.30	+ 9 59 59.6	44.5	− 1.8
2 Equulei .	7	9 45 10.2	20 52 29.35	− 0 54.35	− 0.49	− 1.00	+ 6 19 37.6	− 0 50.5	− 1.5

1783 SEPTEMBER 9 Zero corr. = + 1′ 47″.9.

Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
27 f Pleiadum .		17 18 6.2	3 38 6.2	− 1 42.56	− 1.90	− 0.79	+ 23 21 24.6	− 0 26.8	− 0.2
45 ε Persei . .		25 9.3	45 9.3	1 42.46	− 3.61	+ 1.28	+ 39 20 23.1	0 9.4	+ 3.9
34 γ Eridani .		29 38.2	49 38.2	1 42.42	+ 1.11	+ 1.58	− 14 7 44.2	1 49.3	− 0.4
39 Tauri . .		34 19.5	54 19.5	1 42.38	− 1.72	− 1.09	+ 21 23 30.4	0 29.2	− 0.7
44 P " . .		39 26.9	3 59 26.9	1 42.33	2.14	− 0.14	+ 25 52 45.6	23.8	+ 0.7
74 ε " . .		17 57 46.4	4 17 46.4	1 42.15	1.49	− 1.33	+ 18 39 59.4	32.7	− 1.4
81 " . .	6	18 0 5.7	20 5.7	1 42.13	1.19	− 1.56	+ 15 11 22.4	37.4	− 1.9
85 " . .		1 17.2	21 17.2	1 42.12	1.21	− 1.54	+ 15 21 19.4	37.2	− 1.9
86 " . .		3 21.5	23 21.5	1 42.10	1.13	− 1.62	+ 14 21 30.1	38.6	− 2.0
e) 87 Aldebaran	1	5 17.6	25 17.6	1 42.08	1.26	− 1.49	+ 16 2 32.4	36.2	− 1.8
94 τ Tauri . .		11 2.9	31 2.9	1 42.03	− 1.82	− 0.93	+ 22 30 26.6	0 27.8	− 0.3
57 μ Eridani .		16 22.9	36 22.9	1 41.98	+ 0.28	+ 1.49	− 3 40 8.4	1 13.0	− 0.6
10 η Aurigæ .		33 7.7	4 53 7.7	1 41.82	− 3.80	+ 1.36	+ 40 53 32.8	0 7.8	+ 4.3
f) Capella .		42 28.8	5 2 28.8	1 41.73	− 4.51	+ 2.27	+ 45 43 29.8	0 3.1	+ 5.3
Rigel . .		45 49.1	5 49.1	1 41.70	+ 0.65	+ 1.87	− 8 27 57.0	1 27.2	− 0.5
112 β Tauri . .		54 21.5	14 21.5	1 41.61	− 2.38	+ 0.73	+ 28 22 57.9	0 20.9	+ 1.4
24 γ Orionis .		18 55 16.6	5 15 16.6	− 1 41.60	− 0.47	− 0.97	+ 6 7 38.0	− 0 51.8	− 1.5

a Div. assumed as 78 10 9; not 78 10 8.
b ζ assumed as 73° 38′ 49″; not 73° 38′ 9″.
c T. II assumed as 58s.; not 38s.
d Ts. II and III assumed as 53m. 24s. and 53m. 47s.5; not 50m. 19s. and 53m. 42s.5, respectively.
e Div. assumed as 34 15 15; not 34 15 14.
f T. I assumed as 41m.; not 42m.

1783 SEPTEMBER 15 Zero corr. = + 1′ 50″.2.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
8 α Equulei .		22 45 26.1	21 5 26.1	— 0 23.64	— 0.33	— 0.52	+ 4 20 59.2	— 0 54.3	— 1.3
a) 22 β Aquarii .	3	23 0 32.0	20 32.0	23.48	+ 0.49	+ 1.86	— 6 31 12.0	1 20.1	— 0.5
4 Pegasi . .		8 8.0	28 8.0	23.43	— 0.36	— 0.61	+ 4 47 26.0	0 53.6	— 1.4
	7	10 36.3	30 36.3	23.38	0.30	— 0.45	+ 4 2 2.1	55.0	— 1.3
	7	11 43.5	31 43.5	23.37	0.29	— 0.41	+ 3 50 46.9	55.4	— 1.3
8 ε " . .		14 0.8	34 0.8	23.36	0.67	— 1.61	+ 8 52 33.4	46.5	— 1.8
11 " . .		16 41.2	36 41.2	23.33	0.13	— 0.05	+ 1 40 54.2	59.7	— 1.0
14 " . .		20 44.1	40 44.1	23.30	2.40	+ 1.04	+ 29 9 1.9	19.9	+ 1.6
15 " . .		23 17.7	43 17.7	23.27	2.26	+ 0.46	+ 27 45 51.2	21.4	+ 1.3
	7.8	26 6.1	46 6.1	23.24	2.87	+ 1.39	+ 33 43 55.0	15.0	+ 2.9
18 " . .		29 46.1	49 46.1	23.21	0.43	— 0.85	+ 5 40 25.7	51.9	— 1.5
	7.8	33 20.0	53 20.0	23.17	0.28	— 0.39	+ 3 44 15.0	55.7	— 1.3
22 ν " . .		35 12.1	55 12.1	23.16	0.30	— 0.45	+ 3 59 44.1	55.2	— 1.3
25 " . .	6	38 8.4	21 58 8.4	23.13	1.62	— 1.18	+ 20 38 10.8	29.8	— 0.7
b) 28 " . .		40 45.0	22 0 45.0	23.11	1.55	— 1.24	+ 19 54 10.0	30.8	— 1.1
c)	7	45 8.5	5 8.5	23.06	1.84	— 0.81	+ 23 13 31.6	26.6	— 0.2
	7.8	48 49.9	8 49.9	23.03	2.03	— 0.31	+ 25 15 49.0	24.3	+ 0.4
30 " . .		50 0.4	10 0.4	23.02	0.35	— 0.59	+ 4 41 44.2	53.7	— 1.4
33 " . .		53 42.3	13 42.3	22.98	1.54	— 1.25	+ 19 44 32.6	31.0	— 1.1
34 " . .		56 2.2	16 2.2	22.96	0.25	— 0.33	+ 3 17 4.5	56.7	— 1.2
35 " . .		57 20.0	17 20.0	22.95	0.27	— 0.38	+ 3 36 16.4	56.0	— 1.3
37 " . .		23 59 27.1	19 27.1	22.93	0.25	— 0.34	+ 3 19 35.8	56.5	— 1.2
39 " . .		0 2 36.2	22 36.2	22.91	1.49	— 1.31	+ 19 6		
d)	7	5 51.3	25 51.3	22.88	1.49	— 1.31	+ 19 8 51.2	31.8	— 1.3
40 " . .	6.7	8 52.5	28 52.5	22.84	1.43	— 1.35	+ 18 23 20.0	32.7	— 1.4
44 η " . .		13 19.4	33 19.4	22.80	2.39	+ 1.01	+ 29 4 15.7	20.0	+ 1.6
46 ξ " . .		16 21.6	36 21.6	22.78	0.84	— 2.90	+ 11 3 7.4	43.2	— 1.9
48 μ " . .		20 1.7	40 1.7	22.74	1.86	— 0.77	+ 23 26 32.8	26.5	— 0.1
15 Lacertæ .		22 46.0	42 46.0	22.72	3.89	+ 1.44	+ 42 8 18.2	6.6	+ 4.5
	7	28 0.7	48 0.7	22.67	1.59	— 1.21	+ 20 20 30.6	30.2	— 1.0
	7.8	29 57.1	49 57.1	22.65	1.57	— 1.23	+ 20 2 48.5	30.5	— 1.1
	7	32 58.2	52 58.2	22.62	1.54	— 1.25	+ 19 44 21.6	31.0	— 1.1
	7.8	35 24.2	55 24.2	22.59	1.48	— 1.31	+ 19 3 27.0	31.8	— 1.3
	7	36 15.7	56 15.7	22.58	1.46	— 1.33	+ 18 43 35.4	32.3	— 1.3
57 m Pegasi . .		39 2.7	22 59 2.7	22.56	0.57	— 1.27	+ 7 29 35.6	48.8	— 1.6
6 Androm. .		40 56.9	23 0 56.9	22.55	3.92	+ 1.46	+ 42 21 25.0	6.4	— 4.6
7 " . .		43 7.5	3 7.5	22.53	4.81	+ 3.07	+ 48 11 47.3	0.6	+ 5.5
8 " . .		48 12.5	8 12.5	22.48	4.74	+ 2.97	+ 47 48 17.0	1.0	+ 5.5
66 Pegasi . .		52 38.3	12 38.3	22.44	0.84	— 2.92	+ 11 6 50.0	43.2	— 1.9
70 " . .		0 58 41.2	18 41.2	22.38	0.88	— 2.98	+ 11 33 10.6	42.5	— 2.0
	7	1 1 27.2	21 27.2	22.36	2.21	+ 0.27	+ 27 11 23.5	22.2	— 1.0
72 " . .	6	3 41.0	23 41.0	22.34	2.49	+ 1.20	+ 30 6 37.6	18.9	+ 1.9
	8	6 14.0	26 14.0	22.31	2.65	+ 1.37	+ 31 41 4.2	17.2	+ 2.4
17 ι Androm. .		8 1.1	28 1.1	22.29	3.88	+ 1.43	+ 42 2 37.6	6.6	+ 4.5
29 κ " . .		10 15.0	30 15.0	22.27	4.02	+ 1.53	+ 43 6 29.0	5.6	+ 4.7
	8	14 20.4	34 20.4	22.24	4.32	+ 2.05	+ 45 9		
20 ψ " . .		15 48.4	35 48.4	22.22	4.33	+ 2.06	+ 45 11 29.3	3.6	+ 5.1
	8	18 49.0	38 49.0	22.19	1.71	— 1.06	+ 21 37 59.8	28.7	— 0.6
	7.8	21 27.8	41 27.8	22.17	3.20	+ 1.29	+ 36 40 0.1	12.0	+ 3.4
26 Piscium .		24 29.7	44 29.7	22.14	0.44	— 0.90	+ 5 51 18.7	51.9	— 1.5
84 ψ Pegasi . .		27 11.9	47 11.9	22.12	1.91	— 0.67	+ 23 55 5.0	25.9	0.0
	7	29 47.8	49 47.8	22.09	2.07	— 0.19	+ 25 41 43.0	23.9	+ 0.6
85 " . .		31 19.8	51 19.8	22.08	2.09	— 0.13	+ 25 54 56.4	23.6	+ 0.7
	6.7	35 50.6	55 50.6	22.04	2.27	+ 0.49	+ 27 48 18.0	21.5	+ 1.3
21 α Androm. .		37 39.9	57 39.9	22.02	2.27	+ 0.50	+ 27 52 22.4	21.4	+ 1.3
22 " . .		1 39 34.6	23 59 34.6	— 0 21.99	— 4.28	+ 1.92	+ 44 50 16.5	— 0 3.9	+ 5.1

a T I assumed as 9s.; not 19s.
b ζ assumed as 28° 56′; not 28° 58′.
c ζ assumed as 25° 37′; not 25° 32′.
d Div. assumed as 31; not 30.

1783 SEPTEMBER 15—Continued Zero corr. = + 1′ 50″.2.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
88 γ Pegasi . .		1 42 33.3	0 2 33.3	− 0 21.97	− 1.07	− 1.66	+ 13 57 45.4	− 0 39.0	− 2.0
24 θ Androm. .		46 15.7	6 15.7	21.94	3.29	+ 1.27	+ 37 27 9.6	11.3	+ 3.5
27 ρ " . .		50 12.2	10 12.2	21.90	3.21	+ 1.29	+ 36 44 32.8	12.0	+ 3.5
	8	53 5.1	13 5.1	21.87	4.01	+ 1.52	+ 43 2 5.0	5.7	+ 4.7
a) 28 " . .		1 59 9.5	19 9.5	21.82	2.34	+ 0.79	+ 28 32 1.4	20.6	+ 1.5
	8	2 1 16.0	21 16.0	21.80	3.91	+ 1.44	+ 42 16 9.0	6.4	+ 4.5
	7	4 3.0	24 3.0	21.77	3.08	+ 1.32	+ 35 36 45.4	13.2	+ 3.2
29 π " . .		5 47.2	25 47.2	21.75	2.74	+ 1.39	+ 32 30 4.8	16.4	+ 2.6
30 ε " . .		7 34.6	27 34.6	21.74	2.30	+ 0.64	+ 28 6 40.9	21.2	+ 1.3
Nebula .		11 23.7	31 23.7	21.70	3.61	+ 1.31	+ 40 3 27.0	8.6	+ 4.1
	6	14 42.2	34 42.2	21.67	4.09	+ 1.62	+ 43 38 48.3	5.1	+ 4.8
	7	18 43.3	38 43.3	21.63	4.12	+ 1.65	+ 43 47 23.2	5.0	+ 4.9
25 Mayer . .	8	22 35.5	42 35.5	21.60	0.22	− 0.26	+ 2 53 57.2	57.7	− 1.2
29 " . .	7.8	27 31.5	47 31.5	21.55	0.43	− 0.85	+ 5 39 35.4	52.4	− 1.5
71 ε Piscium .		32 8.6	52 8.6	21.51	0.51	− 1.08	+ 6 42 29.6	0 50.5	− 1.6
Mars . .		2 34 6.9	0 54 6.9	21.49	0.04	+ 0.20	+ 0 31 57.8	1 2.7	− 0.9
106 Piscium .		3 10 34.9	1 30 34.9	21.15	0.33	− 0.52	+ 4 22 30.4	0 54.9	− 1.3
110 o " . .		14 24.1	34 24.1	21.11	0.61	− 1.37	+ 8 2 53.2	48.2	− 1.7
	8.9	20 34.1	40 34.1	21.05	1.83	− 0.85	+ 23 1 7.4	27.2	− 0.2
6 β Arietis . .		23 8.6	43 8.6	21.03	1.54	− 1.25	+ 19 43 25.6	31.3	− 1.1
b) 57 γ Androm. .		31 6.3	51 6.3	20.95	3.77	+ 1.37	+ 41 15 14.2	7.5	+ 4.3
13 α Arietis . .		35 25.9	1 55 25.9	20.91	1.77	− 0.95	+ 22 24 37.8	27.9	− 0.4
60 Androm. .		40 8.7	2 0 8.7	20.87	4.03	+ 1.54	+ 43 10 35.3	5.6	+ 4.7
8 δ Trianguli .		3 44 18.2	2 4 18.2	− 0 20.83	− 2.81	+ 1.40	+ 33 11 52.3	− 0 15.7	+ 2.7

1783 SEPTEMBER 17 Zero corr. = + 1′ 49″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
51 Piscium .	7	2 1 12.2	0 21 12.2	+ 0 5.31	− 0.41	− 0.87	+ 5 44 49.0	− 0 52.4	− 1.5
29 π Androm. .		5 19.2	25 19.2	5.35	2.61	+ 1.39	+ 32 30 7.4	16.4	+ 2.6
30 ε " . .		7 7.0	27 7.0	5.36	2.19	+ 0.64	+ 28 6 41.6	21.3	+ 1.3
	8.9	10 58.0	30 58.0	5.40	2.04	0.00	+ 26 25 50.8	23.2	+ 0.8
	6.7	14 14.6	34 14.6	5.43	3.91	+ 1.62	+ 43 38 51.0	5.1	+ 4.8
	8.9	16 34.6	36 34.6	5.45	3.93	+ 1.64	+ 43 45 41.0	5.0	+ 4.9
	7	18 15.7	38 15.7	5.47	3.93	+ 1.65	+ 43 47 29.6	5.0	+ 4.9
	8	22 8.2	42 8.2	5.50	0.21	− 0.27	+ 2 53 58.2	57.8	− 1.2
29 Mayer . .	7.8	27 4.3	47 4.3	5.55	0.41	− 0.85	+ 5 39 33.8	52.5	− 1.5
	9.10	30 50.6	50 50.6	5.58	0.49	− 1.08	+ 6 45 17.0	50.6	− 1.6
ε Piscium .		31 41.4	51 41.4	5.59	0.48	− 1.08	+ 6 42 32.1	50.7	− 1.6
77 " . .	7.8	34 34.5	54 34.5	5.62	0.27	− 0.39	+ 3 44 33.0	56.1	− 1.3
	7.8	34 37.2	0 54 37.2	5.62	0.27	− 0.39	+ 3 44 31.8	56.1	− 1.3
86 " . .		42 26.0	1 2 26.0	5.67	0.46	− 1.03	+ 6 24 51.8	51.2	− 1.5
89 f " . .		46 35.1	6 35.1	5.73	0.19	− 0.20	+ 2 27 40.6	59.1	− 1.1
46 Androm. .		49 38.3	9 38.3	5.75	4.01	+ 1.76	+ 44 21 39.2	4.4	+ 4.9
48 " . .		54 44.5	14 44.5	5.80	3.99	+ 1.74	+ 44 15 15.3	4.5	+ 4.9
99 η Piscium .		2 59 53.8	19 53.8	5.85	1.04	− 1.63	+ 14 12 28.6	38.8	− 2.0
	7.8	3 3 8.6	23 8.6	5.88	3.43	+ 1.30	+ 39 56 8.6	8.8	+ 4.1
50 υ^1 Androm. .		4 6.9	24 6.9	5.89	3.46	+ 1.32	+ 40 17 24.9	8.5	+ 4.1
	7	7 21.4	27 21.4	5.92	3.39	+ 1.29	+ 39 33 12.9	9.2	+ 4.0
53 τ " . .		7 50.1	27 50.1	5.92	3.37	+ 1.29	+ 39 26 52.5	9.3	+ 4.0
109 Piscium .	8	13 6.7	33 6.7	5.97	1.41	− 1.31	+ 18 58 39.7	32.3	− 1.3
	6.7	16 17.5	36 17.5	6.00	2.52	+ 1.36	+ 31 33 49.2	17.5	+ 2.4
2 α Trianguli .	4	20 44.3	40 44.3	6.04	2.23	+ 0.79	+ 28 29 41.2	20.8	+ 1.4
6 β Arietis . .		22 41.1	42 41.1	6.06	1.47	− 1.25	+ 19 43 27.7	31.3	− 1.2
	7.8	27 2.7	47 2.7	6.10	1.28	− 1.42	+ 17 16 50.8	34.5	− 1.7
57 γ Androm. .		30 39.2	50 39.2	6.13	3.60	+ 1.37	+ 41 15 16.6	7.5	+ 4.3
c)	6	30 40.0	50 40.0	6.13	3.60	+ 1.37			
13 α Arietis . .		34 58.4	54 58.4	6.17	1.69	− 0.94	+ 22 24 39.0	27.9	− 0.4
d) 59 Androm. .	6.7	37 46.0	1 57 46.0	6.19	3.20	+ 1.27	+ 37 59 0.4	10.8	+ 3.7
8 δ Trianguli .		43 50.4	2 3 50.4	6.25	2.68	+ 1.40	+ 33 12 1.4	15.8	+ 2.7
	7.8	52 50.2	12 50.2	6.33	2.26	+ 0.92	+ 28 52 15.6	20.5	+ 1.6
12 c " . .		3 55 28.0	2 15 28.0	+ 0 6.36	− 2.24	+ 0.85	+ 28 40 14.8	− 0 20.7	+ 1.4

a ζ assumed as 20° 19′; not 20° 14′.
b Div. assumed as 8 1 10; not 8 1 9.
c ζ assumed as that of comp. to γ Andromedæ.
d ζ assumed as 10° 52′; not 10° 51′.

1783 SEPTEMBER 17—Continued Zero corr. = + 1′ 49″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
14 Trianguli		3 58 53.8	2 18 53.8	+ 0 6.39	− 2.89	+ 1.33	+ 35 9 5.6	− 0 13.7	+ 3.1
a) 15 "		4 2 38.7	22 38.7	6.42	2.73	+ 1.39	+ 33 42 29.4	15.2	+ 2.9
b)	7.8	2 42.3	22 42.3	6.42	2.74	+ 1.39	+ 33 44 35.0	15.2	+ 2.9
32 υ Arietis		6 30.8	26 30.8	6.46	1.57	− 1.14	+ 20 59 47.6	29.7	− 0.8
c) 14 Persei		10 1.5	30 1.5	6.49	3.87	+ 1.56	+ 43 20 8.0	5.3	+ 4.7
87 μ Ceti		13 12.8	33 12.8	6.52	0.65	− 1.73	+ 9 10 36.0	46.7	− 1.8
16 P Persei	4	16 55.8	36 55.8	6.55	3.13	+ 1.27	+ 37 23 21.7	11.4	+ 3.5
d) 20 P² "	6	20 3.7	40 3.7	6.60	3.14	+ 1.27	+ 37 25 1.6	11.4	+ 3.5
21 "		24 8.2	44 8.2	6.62	2.47	+ 1.31	+ 31 1 35.7	18.1	+ 2.2
	8	27 51.2	47 51.2	6.65	0.41	− 0.88	+ 5 46 6.1	52.5	− 1.5
92 α Ceti		30 54.3	50 54.3	6.70	0.23	− 0.31	+ 3 13 12.7	57.4	− 1.2
26 β Persei		34 6.2	54 6.2	6.71	3.45	+ 1.31	+ 40 4 49.9	8.7	+ 4.1
28 ω "		37 19.6	2 57 19.6	6.74	3.29	+ 1.28	+ 38 44 57.2	10.0	+ 3.9
58 ζ Arietis		42 26.6	3 2 26.6	6.79	1.51	− 1.22	+ 20 12 39.3	30.7	− 1.1
	7.8	47 58.6	7 58.6	6.84	1.42	− 1.31	+ 19 3 24.4	32.2	− 1.3
e)	6	52 40.4	12 40.4	6.88	4.61	+ 3.11	+ 48 15 37.2	0.6	+ 5.5
36 Persei		4 57 27.2	17 27.2	6.93	4.14	+ 2.09	+ 45 16 36.6	3.5	+ 5.1
37 ψ "		5 1 7.8	21 7.8	6.96	4.46	+ 2.86	+ 47 25 28.3	1.4	+ 5.4
39 δ "		7 31.4	27 31.4	7.02	4.40	+ 2.76	+ 47 2 50.8	1.8	+ 5.4
20 c Pleiadum		12 55.3	32 55.3	7.07	1.80	− 0.73	+ 23 39 36.0	26.4	0.0
27 f "	6	16 15.9	36 15.9	7.10	1.77	− 0.79	+ 23 21 22.6	26.8	+ 0.1
44 ζ Persei		20 29.1	40 29.1	7.14	2.48	+ 1.32	+ 31 12 4.9	18.0	+ 2.2
45 ε "		23 18.3	43 18.3	7.16	− 3.36	+ 1.28	+ 39 20 23.1	0 9.4	+ 3.9
34 γ Eridani		27 47.6	47 47.6	7.20	+ 1.03	+ 1.58	− 14 7 49.4	1 49.8	− 0.4
37 Tauri		31 51.7	51 51.7	7.24	− 1.61	− 1.09	+ 21 27 23.2	0 29.2	− 0.7
43 ω "		36 31.0	3 56 31.0	7.28	1.41	− 1.31	+ 19 0 10.8	32.3	− 1.3
52 f Persei		5 40 8.0	4 0 8.0	+ 0 7.33	− 3.43	+ 1.30	+ 39 53 25.4	− 0 8.8	+ 4.1

1783 SEPTEMBER 25 Zero corr. = + 1′ 47″.5

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	5.6	7 16 28.4	5 36 28.4	+ 1 42.49	− 0.69	− 2.14	+ 9 46 28.6	− 0 45.7	− 1.8
37 θ Aurigæ		23 17.9	43 17.9	1 42.55	2.99	+ 1.27	+ 37 9 1.4	11.6	+ 3.5
5 Geminorum	6	36 36.6	5 56 36.6	1 42.66	1.80	− 0.54	+ 24 25 44.5	25.5	+ 0.1
7 η "		40 9.5	6 0 9.5	1 42.70	1.64	− 0.93	+ 22 31 57.8	27.9	− 0.3
13 μ "		7 48 12.7	8 12.7	1 42.76	1.64	− 0.92	+ 22 35 12.2	27.9	− 0.3
24 γ "		8 3 32.7	23 32.7	1 42.88	1.17	− 1.47	+ 16 32 59.4	35.6	− 1.7
27 ε "		8 56.7	28 56.7	1 42.93	− 1.87	− 0.30	+ 25 18 22.4	0 24.6	+ 0.5
Sirius	1	13 51.3	6 33 51.3	1 42.97	+ 1.16	+ 1.67	− 16 25 16.4	2 1.4	− 0.5
α Geminorum		8 59 3.7	7 19 3.7	+ 1 43.34	− 2.50	+ 1.39	+ 32 19 14.0	− 0 16.7	+ 2.5

a ζ assumed as 15° 8′ 35″; not 15° 8′ 25″.
b ζ assumed as 15° 6′ 30″; not 15° 6′ 50″.
c ζ assumed as 5° 30′; not 5° 20′.
d T. III assumed as 32s.5.; not 22s.5.
e Div. assumed as 0 10; not 0 8.

1784 MARCH 22 Zero corr. = + 1′ 44″.3.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	Sun I limb		2 59 32.5	0 8 32.5	− 0 22.00	− 0.08	+ 0.03	+ 1 15 38.6	− 1 5.1	− 0.9
	Sun II limb		3 1 42.2	0 10 42.2						
a)	γ Geminorum		9 16 39.3	6 25 39.3	21.30	− 1.11	− 1.47	+ 16 32 59.0	0 37.8	− 1.7
	Sirius . .	1	26 57.7	35 57.7	21.28	+ 1.10	+ 1.67	− 16 25 40.3	2 9.0	− 0.5
								+ 13 37 45.0	0 42.2	− 2.0
			32 14.6	42 14.6	21.27	− 3.76	+ 2.12	+ 45 19 42.0	3.7	+ 5.1
		7	36 52.3	45 52.3	21.27	1.84	− 0.02	+ 26 19 32.8	24.8	+ 0.8
b)		7	37 31.3	46 31.3	21.27	1.83	− 0.06	+ 26 10 12.5	24.9	+ 0.7
	ω Geminorum	7	40 39.2	49 39.2	21.26	1.69	− 0.51	+ 24 29 7.8	27.0	+ 0.2
	ζ " . .		42 42.1	51 42.1	21.25	1.42	− 1.16	+ 20 51 5.1	31.8	− 0.8
c)			48 11.2	57 11.2	21.25	3.08	+ 1.29	+ 39 37 47.8	9.7	+ 4.0
			50 42.5	6 59 42.5	21.24	1.69	− 0.51	+ 24 27 9.0	27.1	+ 0.2
		6	53 50.6	7 2 50.6	21.24	2.00	+ 0.67	+ 28 14 6.2	22.5	+ 1.3
			57 5.2	6 5.2	21.23	1.13	− 1.44	+ 16 53 47.7	37.3	− 1.7
d)	δ " . .		9 58 37.1	7 37.1	21.23	1.57	− 0.88	+ 22 20 40.3	29.0	− 0.2
		6	10 4 24.0	13 24.0	21.21	0.79	− 2.46	+ 12 3 41.8	44.8	− 2.0
e)		5.6	7 45.2	16 45.2	21.21	2.00	+ 0.72	+ 28 19 25.0	22.4	+ 1.4
	Procyon .		19 23.4	28 23.4	21.19	0.37	− 0.88	+ 5 45 5.6	55.9	− 1.5
	β Geminorum		23 28.5	32 28.5	21.18	2.02	+ 0.79	+ 28 30 37.6	0 22.2	+ 1.5
			31 52.4	40 52.4	21.16	0.15	− 0.16	+ 2 17 35.5	1 3.0	− 1.0
		6	34 27.5	43 27.5	21.16	1.39	− 1.20	+ 20 25 16.4	0 32.4	− 1.0
			36 8.0	45 8.0	21.16	1.09	− 1.48	+ 16 20 10.0	0 38.2	− 1.8
			38 31.0	47 31.0	21.15	0.19	− 0.25	+ 2 46 33.1	1 2.0	− 1.2
		7	42 29.4	51 29.4	21.15	1.55	− 0.91	+ 22 38 31.0	0 29.5	− 0.3
		7	44 54.3	53 54.3	21.14	1.60	− 0.81	+ 23 13 5.4	28.8	− 0.2
		6	46	55				+ 22 10 33.0	30.1	− 0.5
f)			48 2.5	57 2.5	21.14	0.94	− 1.63	+ 14 14 21.4	41.3	− 2.0
		8	50 57.0	7 59 57.0	21.13	1.14	− 1.42	+ 17 8 58.9	37.0	− 1.7
		7	52 7.2	8 1 7.2	21.13	1.14	− 1.42	+ 17 7 50.0	37.0	− 1.7
		7.8	55 14.5	4 14.5	21.12	2.74	+ 1.30	+ 36 21 19.3	13.3	+ 3.4
		6	10 59 9.0	8 9.0	21.12	1.46	− 1.09	+ 21 23 48.8	31.1	− 0.7
		7	11 2 23.7	11 23.7	21.11	1.28	− 1.31	+ 18 59 37.1	34.4	− 1.3
			11 5 6.3	8 14 6.3	− 0 21.10	− 1.94	+ 0.42	+ 27 36 18.9	− 0 23.3	+ 1.2

1784 MARCH 23 Zero corr. = + 1′ 47″.2.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
g)	Sun I limb		3 3 8.2	0 12 8.2	− 0 19.40	− 0.07	+ 0.06	+ 1 7 3.0	− 1 4.3	− 0.9
h)	Sun II limb		3 5 8.0	0 14 8.0	19.40	− 0.11	− 0.04	+ 1 39 15.0	1 3.1	− 1.0
i)	Aldebaran .		7 15	4 24				+ 16 2 33.6	0 37.8	− 1.8
j)	Capella .							+ 45 43 47.0	0 3.0	+ 5.2
	Rigel . .		7 55 27.5	5 4 27.5	18.91	+ 0.54	+ 1.87	− 8 28 11.3	1 31.5	− 0.5
	β Tauri . .		8 4 0.5	13 0.5	18.90	− 1.99	+ 0.73	+ 28 23 8.4	0 22.0	+ 1.4
	γ Orionis .		4 54.5	13 54.5	18.90	− 0.40	− 0.96	+ 6 7 30.5	0 54.4	− 1.5
	ζ " . .		21 10.3	30 10.3	18.87	+ 0.14	+ 1.08	− 2 4 48.7	1 12.3	− 0.7
	κ " . .							− 9 45 45.0	1 36.3	− 0.4
	β Aurigæ .		8 35 3.3	5 44 3.3	18.85	− 3.66	+ 1.93	+ 44 52 45.9	0 4.1	+ 5.1
k)	γ Geminorum		9 16 36.5	6 25 36.5	18.77	1.09	− 1.47	+ 16 32 56.8	37.3	− 1.7
								+ 44 41 7.0	4.4	+ 5.0
	ε " . .		22 0.7	31 0.7	18.77	1.74	− 0.30	+ 25 18 22.8	25.7	+ 0.5
			24 32.4	33 32.4	18.77	− 0.86	− 1.80	+ 13 5 42.7	0 42.4	− 2.0
l)	Sirius . .		26 54.5	35 54.5	18.76	+ 1.08	+ 1.67	− 16 25 41.8	2 7.2	− 0.5
			33 11.8	42 11.8	18.75	− 3.72	+ 2.12	+ 45 19 42.7	0 3.6	+ 5.1
m)				50.2	18.75	1.84	− 0.02	+ 26 19 33.4	24.5	+ 0.8
								+ 26 10 12.5	24.7	+ 0.7
			39 13.0	48 13.0	18.74	1.08	− 1.48	+ 16 20 35.1	37.7	− 1.8
			43 40.1	52 40.1	18.73	1.55	− 0.87	+ 22 55 28.6	28.7	− 0.2
			48 9.0	57 9.0	18.73	3.05	+ 1.29	+ 39 37 43.8	9.6	+ 4.0
		7.8	50 53.5	6 59 53.5	18.72	1.80	− 0.09	+ 26 4 16.0	24.8	+ 0.7
		7.8	9 52 50.5	7 1 50.5	− 0 18.72	− 1.73	− 0.33	+ 25 13 20.8	− 0 25.9	+ 0.4

a Transits discordant.
b T. III assumed as 37m.; not 38m.
c Hour assumed as 9; not 7.
d ζ assumed as 26° 30′; not 26° 0′.
e Div. assumed as 21 14 5; not 21 14 7: and ζ rejected.
f T. III assumed as 48m.; not 46m.
g, h ζ and Div. reading ass'd as one line too high.
i Div. assumed as 34 15 15; not 34 15 14.
j ζ assumed as 3° 7′ 18″; not 3° 7′ 8″.
k Micr. corr. assumed as + 8; not − 8.
l ζ assumed as 65° 16′; not 65° 17′.
m Min. assumed as 42.

1784 MARCH 23—Continued Zero corr. = + 1′ 47″. 2.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		7	9 55 1.1	7 4 1.1	− 0 18.71	− 1.88	+ 0.21	+ 27 2 26.2	− 0 23.7	+ 1.0
			9 58 57.3	7 57.3	18.70	2.77	+ 1.27	+ 37 7 27.6	12.3	+ 3.5
			10 3 39.4	12 39.4	18.70	− 1.97	+ 0.66	+ 28 11 19.1	0 22.3	+ 1.3
a)	η Can. Maj. .		6 47.2	15 47.2	18.70	+ 2.03	+ 4.42	− 28 51 7.2	4 23.4	− 4.5
	α Geminorum		12 8.6	21 8.6	18.69	− 2.33	+ 1.39	+ 32 19 21.2	0 17.5	+ 2.5
	Procyon .		10 19 20.2	7 28 20.2	− 0 18.67	− 0.37	− 0.87	+ 5 45 2.2	− 0 55.1	− 1.5

1784 MARCH 26 Zero corr. = + 1′ 45″.0.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	γ Geminorum		9 16 29.0	6 25 29.0	− 0 12.01	− 1.08	− 1.47	+ 16 32 59.4	− 0 36.2	− 1.7
	ε " . .		21 52.7	30 52.7	12.01	1.72	− 0.30	+ 25 18 23.6	25.0	+ 0.5
			24 25.6	33 25.6	12.00	− 0.85	− 1.78	+ 13 5 43.7	0 41.3	− 2.0
	Sirius . .		26 48.2	35 48.2	12.00	+ 1.08	+ 1.67	− 16 25 44.8	2 3.6	− 0.5
		6	39 6.5	48 6.5	11.99	− 1.07	− 1.48	+ 16 20 36.6	0 36.6	− 1.8
	ε Can. Maj. .							− 28 39 5.2	4 11.8	− 4.3
			47 14.5	56 14.5	11.97	1.06	− 1.48	+ 16 14 30.6	0 36.6	− 1.8
		7	50 46.8	6 59 46.8	11.96	1.78	− 0.09	+ 26 4 17.5	0 24.1	+ 0.7
			52 43.3	7 1 43.3	11.96	1.72	− 0.32	+ 25 13 23.2	0 25.1	+ 0.4
		7	55 36.3	4 36.3	11.96	1.08	− 1.47	+ 16 29 34.9	36.3	− 1.8
			9 58 50.3	7 50.3	11.95	2.76	+ 1.27	+ 37 7 31.6	11.9	+ 3.5
		6	10 1 44.4	10 44.4	11.94	1.57	− 0.79	+ 23 19 28.2	27.4	− 0.2
			5 27.6	14 27.6	11.94	1.37	− 1.18	+ 20 39 13.2	30.8	− 0.9
	α Geminorum		12 2.2	21 2.2	11.93	2.31	+ 1.39	+ 32 19 20.7	17.0	+ 2.5
b)			14 9.5	23 9.5	11.93	0.25	− 0.41	+ 3 48 46.6	57.3	− 1.3
		7	10 17 22.8	7 26 22.8	− 0 11.92	− 1.68	− 0.47	+ 24 40 33.0	25.7	+ 0.2
	Procyon .							+ 5 45 4.6	− 0 53.5	− 1.5

1784 MAY 25 Zero corr. = + 1′ 39″. 5.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
c)	Sun II limb		7 1 3.5	4 12 3.5	+ 0 27.71	− 1.29	− 1.10	+ 21 21 47.0	− 0 29.0	− 0.7
d)	ζ Virginis .		16 12 15.0	13 23 15.0	29.09	0.03	+ 0.20	+ 0 30 0.0	1 2.4	− 0.9
		7	20 11.2	31 11.2	29.10	3.58	+ 2.84	+ 47 20 57.8	0 1.5	+ 5.4
			25 36.0	36 36.0	29.12	1.10	− 1.34	+ 18 31 0.6	32.7	− 1.4
	η Ursæ Maj.							+ 50 21 56.0	1.5	+ 5.6
			31 29.4	42 29.4	29.13	− 1.13	− 1.31	+ 18 58 52.2	0 32.1	− 1.3
	θ Centauri .		42 27.9	13 53 27.9	29.16	+ 2.33	+ 5.50	− 35 11 53.4	8 3.1	−10.4
	Arcturus .		16 54 25.0	14 5 25.0	+ 0 29.19	− 1.22	− 1.21	+ 20 17 29.1	− 0 30.3	− 1.0

1784 JUNE 5 Zero corr. = + 1′ 44″. 2.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	Sun I limb		7 42 55.6	4 55 55.6	− 0 48.50	− 1.38	− 0.96	+ 22 22 25.3	− 0 27.6	− 0.4
	Sun II limb							+ 22 54 9.0	27.0	− 0.2
e)	Capella .		48 35.9	5 1 35.9	48.48	− 3.44	+ 2.28	+ 45 43 45.8	0 3.0	+ 5.3
	Rigel . .		7 51 56.0	5 4 56.0	48.47	+ 0.50	+ 1.87	− 8 28 5.3	1 26.0	− 0.5
		7	16 52 48.8	14 5 48.8	46.94	− 1.28	− 1.16	+ 20 53 32.2	0 30.1	− 0.8
	Arcturus .							+ 20 17 28.6	0 30.8	− 1.0
		7.8	16 58 39.5	11 39.5	46.92	+ 0.06	+ 0.73	− 1 0 27.8	1 6.8	− 0.7
			17 2 15.5	15 15.5	46.91	− 1.81	+ 0.72	+ 28 22 31.2	0 21.2	+ 1.4
f)		7	6 56.9	14 19 56.9	46.89	1.70	+ 0.13	+ 26 48 15.4	0 22.9	+ 1.0
		6	52 38.8	15 5 38.8	46.77	0.06	+ 0.04	+ 1 9 59.2	1 1.9	− 0.9
			17 56 7.3	9 7.3	46.75	0.15	− 0.21	+ 2 34 41.0	0 58.9	− 1.1
			18 0 25.1	13 25.1	46.74	0.01	+ 0.32	− 0 15 17.9	1 5.1	− 0.8
			5 33.6	18 33.6	46.72	− 0.15	− 0.21	+ 2 35 18.4	0 58.9	− 1.1
			9 39.8	22 39.8	46.72	+ 0.03	+ 0.52	− 0 27 20.4	1 5.7	− 0.8
			12 2.8	25 2.8	46.70	− 2.10	+ 1.39	+ 32 4 14.9	17.1	+ 2.5
g)			18 19 47.4	15 32 47.4	− 0 46.69	− 1.24	− 1.20	+ 20 21 8.6	− 1 30.7	− 1.0

a Micr. corr. assumed as + 3; not − 3.
b Min. assumed as 14m.; not 13m.
c ζ assumed as 27° 29′; not 27° 34′.
d T. III assumed as 12m. 38s.; not 12m. 28s.
e ζ assumed as 3°; not 30°.
f ζ assumed as 22° 2′ 50″; not 22° 2′ 10″: and Div. as 23 8 4; not 23 8 1.
g T. II assumed as 48s.; not 28s.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	$\zeta-\phi$	Refr.	q'
1784 JUNE 5—Continued									Zero corr. = + 1′ 44″.2.	
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
			18 21 30.8	15 34 30.8	− 0 46.69	− 1.70	+ 0.18	+ 26 57 51.4	− 1 22.7	+ 1.0
			27 13.2	40 13.2	46.67	0.17	− 0.26	+ 2 51 7.4	58.5	− 1.2
	κ Coronæ		30 56.7	43 56.7	46.66	2.46	+ 1.30	+ 36 18 33.1	12.6	+ 3.3
			35 16.7	48 16.7	46.64	3.20	+ 1.64	+ 43 44 40.6	5.1	+ 4.9
	π Serpentis		40 50.9	53 50.9	46.63	1.45	− 0.78	+ 23 23 23.8	27.0	− 0.1
a)			45 11.6	58 11.6	46.62	0.62	− 2.61	+ 10 28 5.0	44.8	− 1.8
			45 41.1	15 58 41.1	46.62	0.63	− 2.71	+ 10 38 58.0	44.6	− 1.9
		7	50 44.3	16 3 44.3	46.60	0.80	− 1.74	+ 13 20 33.0	40.5	− 2.0
			51 6.3	4 6.3	46.60	0.84	− 1.64	+ 14 5 41.2	39.4	− 2.0
		7	53 42.3	6 42.3	46.59	0.71	− 2.61	+ 11 57 7.0	42.7	− 2.0
b)		7	18 54 55.0	7 55.0	46.59	1.47	− 0.73	+ 23 38 50.0	26.7	− 0.1
	γ Herculis		19 0 15.6	13 15.6	46.57	− 1.20	− 1.26	+ 19 38 55.0	0 31.6	− 1.2
			6 34.2	19 34.2	46.55	+ 0.96	+ 1.67	− 16 7 29.8	2 0.8	− 0.5
		7	9 48.0	22 48.0	46.55	− 0.36	− 0.93	+ 5 58 39.8	0 52.6	− 1.5
		7	19 18 40.7	16 31 40.7	46.52	− 0.31	− 0.75	+ 5 17 9.5	− 0 54.1	− 1.4
1784 JUNE 8									Zero corr. = + 1′ 43″.2.	
	Capella		7 48 23.1	5 1 23.1	− 0 35.76	− 3.47	+ 2.29	+ 45 43 49.3	− 0 3.1	+ 5.2
	Sun I limb		7 55 5.3	5 8 5.3	35.74	1.44	− 0.82	+ 23 11 8.7	27.2	− 0.2
		7	16 52 36.9	14 5 36.9	34.13	1.29	− 1.16	+ 20 53 40.0	30.0	− 0.8
c)	Arcturus		16 52 28.4	6 28.4	34.12	1.24	− 1.21	+ 20 17 28.6	31.3	− 1.0
	θ Boötis		17 4 4.5	17 4.5	34.08	1.24	− 1.22	+ 20 10 58.4	31.4	− 1.1
	ρ "		10 8.7	23 8.7	34.08	2.06	+ 1.33	+ 31 18 3.6	− 0 18.2	+ 2.3
			17 18 14.1	14 31 14.1	− 0 34.05	− 1.05	− 1.42	+ 17 20		
1784 JUNE 16									Zero corr. = + 1′ 43″.1.	
	Capella		7 47 44.2	5 0 44.2	+ 0 3.37	− 3.51	+ 2.28	+ 45 43 53.3	− 0 3.1	+ 5.3
	Rigel							− 8 28 5.0	1 27.2	− 0.5
	Sun I limb		8 27 37.3	5 40 37.3	3.50	1.46	− 0.83	+ 23 7 5.6	0 27.0	− 0.2
	Sun II limb		8 29 55.9	5 42 55.9	3.51	− 1.50	− 0.74	+ 23 38 46.6	0 26.5	− 0.1
d)	Sirius		9 22 31.6	6 35 31.6	3.69	+ 1.01	+ 1.67	− 16 25 37.8	2 1.3	− 0.5
	Regulus		12 43 50.5	9 56 50.5	4.36	− 0.79	− 1.79	+ 12 59 51.3	0 40.9	− 2.0
	η Ursæ Maj.		16 25 59.1	13 38 59.1	4.92	4.13	+ 3.45	+ 50 21 59.0	1.5	+ 5.7
	η Boötis		31 24.1	13 44 24.1	4.93	1.21	− 1.27	+ 19 27 53.9	0 32.0	− 1.2
	θ Centauri							− 35 12 2.4	8 4.4	−10.4
	Arcturus		16 52 48.8	14 5 48.8	4.98	1.27	− 1.21	+ 20 17 31.1	0 31.0	− 1.0
			17 6 5.7	19 5.7	5.03	1.73	+ 0.12	+ 26 48 12.4	23.1	+ 0.9
		5.6	13 20.8	26 20.8	5.03	1.54	− 0.60	+ 24 10 31.4	26.2	0.0
		7.8	18 0.2	31 0.2	5.04	2.08	+ 1.34	+ 31 21 26.5	18.0	+ 2.3
	ε Boötis		22 32.5	35 32.5	5.06	1.81	+ 0.55	+ 27 58 7.0	21.8	+ 1.3
		6.7	25 48.1	38 48.1	5.07	1.61	− 0.32	+ 25 14 52.4	25.0	+ 0.5
			27	40				+ 29 29 41.0	20.1	+ 1.7
		8.9	30 25.2	43 25.2	5.07	1.85	+ 0.72	+ 28 21 59.5	21.4	+ 1.4
		7	32 25.7	45 25.7	5.08	2.05	+ 1.30	+ 30 55 26.2	18.5	+ 2.2
		7.8	35 11.0	48 11.0	5.09	1.63	− 0.24	+ 25 31 31.2	24.7	+ 0.6
								+ 15 40 54.0	37.4	− 1.8
		7.6	38	51				+ 40 6 10.0	8.8	+ 4.1
			41 30.5	54 30.5	5.10	1.81	+ 0.52	+ 27 54 39.1	22.0	+ 1.3
	ψ "		42 10.3	55 10.3	5.10	1.80	+ 0.47	+ 27 46 29.0	22.1	+ 1.3
		8	45 50.1	14 58 50.1	5.11	1.92	+ 1.07	+ 29 19 53.7	20.3	+ 1.7
		7	48 52.6	15 1 52.6	5.11	2.29	+ 1.39	+ 33 52 47.2	15.3	+ 2.9
		6.7	52 26.2	5 26.2	5.13	1.97	+ 1.18	+ 29 56 57.6	19.6	+ 1.9
		8	56 5.0	9 5.0	5.13	2.10	+ 1.37	+ 31 36 37.8	17.7	+ 2.4
		7	17 58 46.3	15 11 46.3	+ 0 5.14	− 1.65	− 0.19	+ 25 43 20.7	− 0 24.5	+ 0.6

a ζ assumed as 38° 23′; not 38° 22′.
b Transit over T. I assumed as recorded over T. II.
c T. III assumed as 53s.; not 33s.
d ζ assumed as 65° 16′ 41″; not 65° 16′ 21″.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
	1784 JUNE 21								Zero corr. = + 1′ 43″.4.	
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	β Persei . .		9 40 52.3	2 54 52.3	— 0 39.05	— 2.94	+ 1.31	+ 40 5 7.8	— 0 8.6	+ 4.1
a)	α " . .		9 5 40.3	3 9 40.3	39.03	4.03	+ 3.25	+ 49 2 50.4	0.2	+ 5.6
	Aldebaran		11 10 14.6	4 24 14.6	38.85	1.01	— 1.49	+ 16 2 33.6	35.9	— 1.8
	Venus . .		11 51 39.0	5 5 39.0	38.76	1.45	— 0.95	+ 22 25 57.8	27.8	— 0.4
b)	Sun I limb		12 48 7.1	6 2 7.1	38.63	1.50	— 0.82	+ 23 10 54.6	26.9	— 0.2
	Sun II limb		12 50 25.2	6 4 25.2	— 0 38.62	— 1.54	— 0.72	+ 23 42 37.3	— 0 26.2	— 0.1
c)	**1784 JUNE 22**								Zero corr. = + 1′ 43″.4.	
		7	4 59 10.9	22 13 10.9	— 0 36.	— 1.06	— 1.44	+ 16 49 28.2	— 0 34.9	— 1.7
	Double star	6	5 3 52.0	17 52.0	36.	2.67	+ 1.27	+ 37 19 5.4	11.4	+ 3.6
		6	6 18.0	20 18.0	36.	1.78	+ 0.18	+ 26 57 55.9	22.4	+ 1.0
		6.7	5 8 52.1	22 22 52.1	— 0 36.	— 1.01	— 1.49	+ 16 5 18.8	— 0 36.0	— 1.8
	1784 JULY 4								Zero corr. = + 1′ 42″.1.	
d)	Aldebaran		11 9 28.7	4 23 28.7	+ 0 4.22	— 1.04	— 1.49	+ 16 2 37.6	— 0 36.6	— 1.8
	Capella .		46 44.0	5 0 44.0	4.31	— 3.69	+ 2.29	+ 45 43 44.8	0 3.1	+ 5.2
e)	Rigel . .		11 50 4.2	5 4 4.2	4.32	+ 0.53	+ 1.87	— 8 28 2.3	1 27.7	— 0.5
	Venus . .		13 0 2.6	6 14 2.6	+ 0 4.47	— 1.57	— 0.76	+ 23 31 33.7	— 0 26.6	— 0.1
	1784 JULY 14								Zero corr. = + 1′ 39″.4.	
	Capella .							+ 45 43 41.0	— 0 3.1	+ 5.2
	Rigel . .		11 49 25.0	5 4 25.0	— 0 16.61	+ 0.54	+ 1.87	— 8 28 2.8	1 27.4	— 0.5
	Venus . .		13 52 53.6	7 7 53.6	16.31	— 1.56	— 0.84	+ 23 2 47.7	0 27.0	— 0.2
	Sun I limb		14 21 28.9	36 28.9	16.22	— 1.46	— 1.03	+ 21 49 38.6	0 28.6	— 0.5
	Sun II limb		14 23 45.2	7 38 45.2						
		8	0 58 46.5	18 13 46.5	14.50	+ 1.59	+ 2.04	— 23 31 13.0	2 54.7	— 0.1
		6	1 2 44.0	17 44.0	14.50	— 0.38	— 0.94	+ 6 3 52.4	0 51.8	— 1.5
f)		6.7	6 47.3	21 47.3	14.49	1.10	— 1.45	+ 16 46 20.4	35.2	— 1.7
	α Lyræ . .		14 55.2	29 55.2	14.46	— 2.92	+ 1.27	+ 38 33 56.2	0 10.2	+ 3.8
g)	ν Sagittarii .	6	27 17.1	42 17.1	14.44	+ 1.55	+ 1.83	— 22 54 21.2	2 44.5	— 1.5
	ο " . .		1 36 58.3	18 51 58.3	14.40	+ 1.48	+ 1.63	— 22 1 24.5	2 39.7	— 1.2
	α Aquilæ .		2 25 34.2	19 40 34.2	— 0 14.28	— 0.53	— 1.44	+ 8 17 50.5	— 0 47.9	— 1.7
	1784 SEPTEMBER 7								Zero corr. = + 1′ 40″.1.	
	γ Aquilæ .		20 18 25.5	19 36 25.5	— 0 20.19	— 0.59	— 2.35	+ 10 5 9.8	— 0 44.6	— 1.8
	α " . .		22 40.2	40 40.2	20.18	0.48	— 1.44	+ 8 17 54.0	47.4	— 1.7
		7	27 51.0	45 51.0	20.17	1.32	— 1.03	+ 21 51 24.4	28.3	— 0.5
		7	30 1.5	48 1.5	20.16	1.41	— 0.82	+ 23 11 30.0	26.7	— 0.2
		6.7	32 28.2	50 28.2	20.15	1.94	+ 1.24	+ 30 23 19.8	18.6	+ 2.0
		6	35	53				+ 36 26		
	Vulpeculæ		40 2.0	19 58 2.0	20.13	1.40	— 0.85	+ 22 59 8.3	0 27.0	— 0.2
h)	α¹ Capricorni		48 1.3	20 6 1.3	20.11	— 0.08	+ 0.01	+ 1 23		
	α² " . .		48	6 24.9	20.11	+ 0.77	+ 1.58	— 13 11 49.8	1 44.4	— 0.3
	β " . .							— 15 26 35.1	1 54.8	— 0.5
	γ Cygni . .		20 56 53.3	14 53.3	20.09	— 2.73	+ 1.29	+ 39 33 7.0	0 9.1	+ 4.0
	ω¹ " . .		21 2 50.1	20 50.1	20.07	3.75	+ 3.17	+ 48 38 59.0	0.2	+ 5.6
	ω² " . .		21 5 45.5	20 23 45.5	— 0 20.06	— 3.69	+ 3.07	+ 48 12 28.4	— 0 0.6	+ 5.5

a T. I assumed as 5s.; not 15s.
b T. III assumed as 32s.2; not 42s.2.
c The observations of June 22 are not used in the catalogue.
d Ts. I, II and III assumed as 5s., 28s.5, and 9m. 52s.5; not 25s., 48s.5, and 10m. 2s.5.
e Div. assumed as 61 2 4; not 61 2 3.
f 10″ assumed as to be subtracted from ζ; not added, as d'Agelet's note directs.
g Div. assumed as 76 8 10; not 76 8 4.
h ζ and Div. reading discordant and rejected; not α¹ Capricorni.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
1784 SEPTEMBER 7—Continued								Zero corr. = + 1′ 40″.1.	
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
1 Delphini .		21 9 55.4	20 27 55.4	— 0 20.05	— 0.62	— 2.70	+ 10 37 19.2	— 0 43.8	— 1.9
	7	14 30.3	32 30.3	20.04	3.29	+ 1.93	+ 44 53 14.7	3.8	+ 5.1
α Cygni . .		16 28.3	34 28.3	20.03	— 3.24	+ 1.79	+ 44 29 31.8	0 4.1	+ 5.0
ω Capricorni		21 12.0	39 12.0	20.02	+ 1.73	+ 3.92	— 27 40 33.7	3 46.8	— 3.6
	6	22 30.2	40 30.2	20.02	— 1.63	— 0.04	+ 26 16 50.0	0 23.4	+ 0.8
	6	27 45.9	45 45.9	20.00	1.70	+ 0.28	+ 27 13 41.6	22.1	+ 1.0
ν Cygni . .	4	31 32.5	49 32.5	20.00	2.80	+ 1.32	+ 40 19 16.7	8.4	+ 4.1
	7.8	36 23.5	20 54 23.5	19.98	2.02	+ 1.35	+ 31 29 14.8	17.5	+ 2.3
9 Equulei .	6	21 52 48.2	21 10 48.2	19.93	— 0.37	— 1.02	+ 6 26 20.9	0 50.8	— 1.5
β Aquarii .		22 2 32.3	20 32.3	19.91	+ 0.38	+ 1.86	— 6 30 45.8	1 20.3	— 0.5
866 Mayer . .	3.4	10 27.2	28 27.2	19.89	1.05	+ 1.58	— 17 36 58.6	2 7.0	— 0.6
λ Aquarii .		17 14.8	35 14.8	19.87	0.72	+ 1.62	— 12 20 53.1	1 40.9	— 0.3
μ Capricorni		23 51.3	41 51.3	19.86	0.86	+ 1.59	— 14 33 3.8	50.6	— 0.5
α Aquarii .		37 3.8	55 3.8	19.81	+ 0.08	+ 0.86	— 1 21 54.2	1 6.9	— 0.7
a) θ Pegasi . .		41 42.2	21 59 42.2	19.80	— 0.30	— 0.71	+ 5 8 8.2	0 53.3	— 1.4
Jupiter .		22 57 7.2	22 15 7.2	— 0 19.76	+ 0.72	+ 1.62	— 12 20 11.2	— 1 40.9	— 0.3
1784 SEPTEMBER 9								Zero corr. = + 1′ 38″.2.	
Sun I limb		23 54 40.2	23 12 40.2				+ 5 15 12.9	— 0 52.0	— 1.4
Sun II limb		23 56 49.4	14 49.4						
Venus . .		0 29 45.5	23 47 45.5				+ 2 46 55.2	0 56.7	— 1.2
Mercury .		0 27 29.8	0 45 29.8				— 6 54 15.3	1 20.1	— 0.5
ν Ophiuchi .		18 29 22.9	17 47 22.9	— 0 13.68	+ 0.57	+ 1.80	— 9 44 6.0	1 31.3	— 0.4
O " . .							+ 2 56 40.0	0 57.7	— 1.2
P " . .		36 50.0	17 54 50.0	13.65	— 0.15	— 0.20	+ 2 33 11.0	58.2	— 1.1
							+ 9 31 57.5	45.9	— 1.8
							+ 30 31 15.0	18.6	+ 2.1
							+ 20 46 29.2	29.9	— 0.9
A Herculis		46 4.0	18 4 4.0	13.63	2.01	+ 1.34	+ 31 20 27.9	17.7	+ 2.3
		52 36.2	10 36.2	13.61	1.49	— 0.56	+ 24 20 56.0	25.5	+ 0.1
106 " . .		53 28.7	11 28.7	13.61	— 1.33	— 1.03	+ 21 51 48.8	28.6	— 0.5
							+ 29 44 49.0	0 19.9	+ 1.8
d Serpentis .		18 58 26.5	16 26.5	13.60	0.00	+ 0.33	+ 0 4 19.0	1 3.7	— 0.8
60 " . .							— 2 7 7.0	9.1	— 0.7
61 " . .		19 3 4.3	21 4.3	13.59	+ 0.07	+ 0.80	— 1 9 1.6	1 6.7	— 0.7
	7	7 21.1	25 21.1	13.57	— 1.22	— 1.21	+ 20 17 40.4	0 30.6	— 1.0
	7.8	10 25.2	28 25.2	13.56	2.64	+ 1.28	+ 38 42 21.0	10.1	+ 3.8
α Lyræ . .		19 11 11.8	18 29 54.9	— 0 13.56	— 2.63	+ 1.28	+ 38 34 11.8	— 0 10.2	+ 3.8
1784 SEPTEMBER 14								Zero corr. = + 1′ 41″.3.	
Sun I limb		13 12 20.0	12 30 20.0				+ 2 48 24.7	— 0 58.0	— 1.2
Sun II limb		14 28.9	12 32 28.9				+ 3 20 26.2	0 56.9	— 1.2
Mercury .		13 46 47.0	13 4 47.0				— 9 39 31.6	1 31.1	— 0.4
		18 56 37.0	18 12 37.0	+ 0 4.04	— 1.87	+ 1.15	+ 29 44 49.6	0 19.6	+ 1.8
b) d Ophiuchi .		18 58 8.0	16 8.0	4.05	0.00	+ 0.33	+ 0 4 19.8	1 4.4	— 0.8
P Serpentis 60	6	19 0 24.2	18 24.2	4.06	+ 0.12	+ 1.09	— 2 7 10.2	9.7	— 0.7
e " . 61	6	2 46.1	20 46.1	4.07	+ 0.06	+ 0.80	— 1 9 5.4	1 7.3	— 0.7
	7	7 3.0	25 3.0	4.08	— 1.20	— 1.21	+ 20 17 34.6	0 30.9	— 1.0
α Lyræ . .		11 36.8	29 36.8	4.09	— 2.60	+ 1.28	+ 38 34 11.4	0 10.3	+ 3.8
		12 23.2	30 23.2	4.09	+ 0.53	+ 1.83	— 9 14 48.8	1 30.5	— 0.4
110 Herculis .	6.5	18 22.5	36 22.5	4.11	— 1.21	— 1.21	+ 20 20 5.7	0 30.8	— 1.0
	7	21 43.0	39 43.0	4.12	+ 0.20	+ 1.44	— 3 30 11.0	1 13.1	— 0.7
	6	21 58.9	39 58.9	4.12	+ 0.20	+ 1.44	— 3 33 45.3	1 13.2	— 0.7
γ Lyræ . .							+ 32 17 34.0	0 16.9	+ 2.5
θ¹ Serpentis .		27 28.2	45 28.2	4.13	— 0.21	— 0.42	+ 3 55 32.8	56.4	— 1.3
θ² " . .		27 29.8	45 29.8	4.13	— 0.21	— 0.42	+ 3 55 32.0	0 56.4	— 1.3
2 Antinoi .		19 32 4.9	18 50 4.9	+ 0 4.15	+ 0.34	+ 1.83	— 6 1 59.8	— 1 20.3	— 0.5

a Hour assumed as 22; not 21: and minute as 41; not 42.

b T. I assumed as 57m.; not 58m.

1784 SEPTEMBER 14—Continued Zero corr. = + 1′ 41″.3.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		5.6	19 38 51.0	18 56 51.0	+ 0 4.16	+ 1.27	+ 1.51	− 21 20 10.4	− 2 35.2	− 1.1
		5.6	44 48.0	19 2 48.0	4.17	− 0.11	− 0.09	+ 1 55 51.9	1 0.4	− 1.0
	1 Anseris .		19 48 56.3	6 56.3	4.17	1.25	− 1.13	+ 21 0 14.5	0 29.9	− 0.8
		7.8	20 2 46.8	20 46.8	4.23	1.01	− 1.42	+ 17 14 27.1	34.8	− 1.7
		6.7	6 32.7	24 32.7	4.24	0.14	− 0.19	+ 2 26 24.2	59.3	− 1.1
		7	9 59.0	27 59.0	4.25	− 0.16	− 0.27	+ 2 53 40.6	0 58.5	− 1.1
	45 Antinoi .		11 33.0	29 33.0	4.25	+ 0.06	+ 0.79	− 1 6 56.0	1 7.3	− 0.7
	47 Aquilæ .		14 26.4	32 26.4	4.26	− 0.65	− 3.00	+ 11 19 2.6	0 43.4	− 1.9
	γ " . .							+ 10 5 10.0	45.4	− 1.8
	α " . .		22 15.5	40 15.5	4.28	0.47	− 1.44	+ 8 17 55.6	48.4	− 1.7
	9 Sagittæ .	7	24 45.0	42 45.0	4.29	1.06	− 1.38	+ 18 6 46.2	33.7	− 1.5
	β Aquilæ .	4.5	26	44				+ 5 52 7.0	52.7	− 1.5
	Sagittæ .	6	29 57.8	47 57.8	4.30	0.94	− 1.48	+ 16 12 16.6	36.3	− 1.8
	6 Vulpeculæ		31 55.3	49 55.3	4.31	1.35	− 0.93	+ 22 30 26.7	28.1	− 0.3
	63 τ Antinoi .		35 35.4	53 35.4	4.32	0.39	− 1.07	+ 6 40 12.2	51.2	− 1.6
a)	15 Vulpeculæ		39 37.2	19 57 37.2	4.33	− 1.38	− 0.85	+ 22 59 7.6	0 27.4	− 0.2
	65 θ Antinoi .	4	42 7.3	20 0 7.3	4.33	+ 0.08	+ 0.89	− 1 27 22.5	1 8.0	− 0.7
	α¹ Capricorni		47 36.5	5 36.5	4.35	0.76	+ 1.58	− 13 9 33.4	46.1	− 0.3
	α² " . .		48 0.0	6 0.0	4.35	0.76	+ 1.58			
	α³ " . .	6	50 37.0	8 37.0	4.36	+ 0.78	+ 1.57	− 13 25 19.5	1 47.3	− 0.3
	γ Cygni .		20 56 28.3	14 28.3	4.37	− 2.69	+ 1.29	+ 39 33 7.0	0 9.3	+ 4.0
			21 1 33.8	19 33.8	4.39	2.52	+ 1.27	+ 37 43 3.4	11.2	+ 3.6
	44 " .	7	4 46.7	22 46.7	4.39	2.40	+ 1.30	+ 36 11 44.2	12.8	+ 3.3
	26 Vulpeculæ	6.7	8 53.2	26 53.2	4.41	1.53	− 0.35	+ 25 7 32.2	25.0	+ 0.4
		6	9	27				+ 25 42 11.0	24.2	+ 0.6
		7	14 6.1	32 6.1	4.42	3.25	+ 1.93	+ 44 53 11.6	4.0	+ 5.1
	α Cygni .		16 4.2	34 4.2	4.42	3.20	+ 1.80	+ 44 29 36.8	4.3	+ 5.0
		7.8	22 51.5	40 51.5	4.44	1.63	+ 0.04	+ 26 33 56.0	23.2	+ 0.9
	31 Anseris .	6.5	24 52.7	42 52.7	4.44	1.61	− 0.04	+ 26 16 47.8	23.6	+ 0.8
		6	21 27 20.9	20 45 20.9	4.45	− 1.68	+ 0.28	+ 27 13 41.0	0 22.4	+ 1.1
	β Aquarii .		22 2 7.2	21 20 7.2	4.55	+ 0.37	+ 1.86	− 6 30 47.8	1 21.7	− 0.5
		7.8	19 56.1	37 56.1	4.59	0.79	+ 1.57	− 13 42 49.8	48.5	− 0.4
b)	μ Capricorni		23 27.2	41 27.2	4.60	0.85	+ 1.59	− 14 33 10.8	52.3	− 0.5
	ι Aquarii .	5	36 42.2	21 54 42.2	4.64	0.87	+ 1.60	− 14 54 4.6	54.1	− 0.5
	Jupiter .		22 53 32.4	22 11 32.4	+ 0 4.68	+ 0.73	+ 1.61	− 12 37 43.6	− 1 43.9	− 0.3

1784 SEPTEMBER 15 Zero corr. = + 1′ 41″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	Sun I limb		0 15 52.1	23 33 52.1				+ 2 57 13.5	− 0 58.4	− 1.2
	Sun II limb		18 0.9	23 36 0.9						
	Venus . .		0 56 34.7	0 14 34.7				− 0 16 51.6	1 5.4	− 0.8
	e Serpentis .		19 2 42.3	18 20 42.3	+ 0 7.86	+ 0.06	+ 0.80	− 1 9 5.4	1 7.3	− 0.7
		7.6	6 58.8	24 58.8	7.87	− 1.20	− 1.21	+ 20 17 34.6	0 30.8	− 1.0
		6	10 10.3	28 10.3	7.88	+ 0.45	+ 1.88	− 7 58 19.3	1 26.4	− 0.5
	o Aquilæ .	5	12 19.6	30 19.6	7.89	+ 0.53	+ 1.83	− 9 14 48.8	30.7	− 0.4
c)	" . .		15 50.8	33 50.8	7.90	− 0.11	+ 0.08	+ 1 50 39.2	1 0.6	− 1.0
	110 Herculis .	5	18 18.8	36 18.8	7.90	1.20	− 1.21	+ 20 20 3.2	0 30.8	− 1.0
		7	21 11.5	39 11.5	7.91	1.40	− 0.80	+ 23 16 3.2	27.1	− 0.2
	112 " . .	6	24 59.6	42 59.6	7.92	1.26	− 1.11	+ 21 9 33.9	29.6	− 0.8
		7	28 28.1	46 28.1	7.93	1.04	− 1.40	+ 17 42 43.0	34.1	− 1.6
		6	28 31.5	46 31.5	7.93	− 1.04	− 1.40	+ 17 49 50.0	0 34.1	− 1.6
	ι Antinoi .	4.5	32 1.5	50 1.5	7.94	+ 0.34	+ 1.83	− 6 2 0.2	1 20.3	− 0.5
	π Sagittarii .		38 47.0	18 56 47.0	7.96	+ 1.27	+ 1.51	− 21 20 11.4	2 35.8	− 1.0
d)			47 56.2	19 5 56.2	7.98	− 1.24	− 1.16	+ 20 50 53.6	0 30.2	− 0.8
			48 52.5	6 52.5	7.99	− 1.26	− 1.14	+ 21 0 12.5	0 30.0	− 0.8
		. 6	55 18.0	13 18.0	8.01	+ 1.32	+ 1.66	− 22 10 20.0	2 42.8	− 1.2
	Saturn . .		19 56 59.3	14 59.3	8.01	+ 1.34	+ 1.69	− 22 21 41.6	2 44.5	− 1.3
	35 Antinoi .	7	20 0 0.7	18 0.7	8.02	− 0.08	− 0.01	+ 1 30 47.0	1 1.4	− 1.0
		8	2 43.2	20 43.2	8.03	1.00	− 1.42	+ 17 14 22.1	0 34.9	− 1.7
e)		7	6 29.4	24 29.4	8.05	0.14	− 0.19	+ 2 26 23.2	59.5	− 1.1
		7	9 55.2	27 55.2	8.06	0.17	− 0.27	+ 2 53 44.0	58.5	− 1.2
		7.8	20 15 37.8	19 33 37.8	+ 0 8.06	− 0.53	− 1.67	+ 9 0 8.0	− 0 47.4	− 1.8

a Minute assumed as 38 and 39; not 39 and 40.
b ζ assumed as 63° 24′; not 63° 14′.
c Min. of Ts. II and III assumed as 15; not 16.
d Micr. corr. assumed as + 10; not 0.
e Min. of Ts. II and III assumed as 6 and 7; not 5 and 6, respectively.

1784 SEPTEMBER 15—Continued

Zero corr. = + 1′ 41″.4.

	Name	Mag.	T	App. sid time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	α Aquilæ		20 22 11.7	19 40 11.7	+ 0 8.08	— 0.48	— 1.44	+ 8 17 55.0	— 0 48.5	— 1.7
a)	γ "	5	31 5.9	49 5.9	8.11	1.12	— 1.32	+ 18 54 2.3	32.8	— 1.3
b)		6	34 32.0	52 32.0	8.12	0.59	— 2.53			
		5	34 48.2	52 48.2	8.12	1.47	— 0.57	+ 24 19 35.2	25.9	+ 0.1
		7	37	55				+ 31 35 52.0	17.6	+ 2.4
		6	40 16.2	19 58 16.2	8.13	2.30	+ 1.33	+ 35 21 56.5	13.6	+ 3.2
		7.6	44	20 2				+ 26 9 29.0	23.8	+ 0.7
		5.6	48 3.0	6 3.0	8.16	1.51	— 0.40	+ 24 55 29.3	25.2	+ 0.4
	24 Vulpeculæ	6	49 29.3	7 29.3	8.16	1.45	— 0.65	+ 23 59 56.0	26.3	0.0
		6.7	52 30.2	10 30.2	8.17	1.00	— 1.42	+ 17 6 32.8	35.2	— 1.7
	25 "	6	54 42.8	12 42.8	8.17	1.43	— 0.71	+ 23 45 0.3	26.6	0.0
	γ Cygni		56 24.6	14 24.6	8.18	2.68	+ 1.29	+ 39 33 8.2	9.3	+ 4.0
		7.8	20 59 55.7	17 55.7	8.19	1.38	— 0.84	+ 23 4 16.2	27.4	— 0.2
	ι "	5	21 2 29.7	20 29.7	8.20	1.85	+ 1.12	+ 29 38 22.7	19.8	+ 1.8
	44 "		4 43.0	22 43.0	8.20	2.38	+ 1.30	+ 36 11 47.8	12.8	+ 3.3
	26 Vulpeculæ	6	8 49.4	26 49.4	8.21	1.52	— 0.35	+ 25 7 35.8	25.0	+ 0.4
		6.7	12 1.7	30 1.7	8.22	1.84	+ 1.11	+ 29 34 11.2	19.9	+ 1.8
	α Cygni		16 0.1	34 0.1	8.24	3.18	+ 1.80	+ 44 29 32.8	4.3	+ 5.0
	ε "		19 24.1	37 24.1	8.25	2.12	+ 1.40	+ 33 9 3.2	16.0	+ 2.7
		8	22 47.8	40 47.8	8.25	1.62	+ 0.04	+ 26 33 59.0	23.3	+ 0.8
	31 Anseris	6	21 24 49.7	20 42 49.7	8.26	1.60	— 0.04	+ 26 16 50.8	23.6	+ 0.7
c)	83 Pegasi	6.7	0 23 26.3	23 41 26.3	8.76	1.21	— 1.20	+ 20 27 28.8	30.8	— 1.0
	84 ψ "	6	28 43.2	44 43.2	8.78	1.44	— 0.67	+ 23 55 38.2	26.5	0.0
		7	31 18.4	49 18.4	8.79	1.56	— 0.19	+ 25 42 16.8	24.4	+ 0.6
	85 "	6.7	32 51.9	50 51.9	8.79	1.58	— 0.13	+ 25 55 22.8	24.2	+ 0.7
		7	35 33.3	53 33.3	8.80	2.14	+ 1.40	+ 33 26 1.0	15.7	+ 2.8
	α Androm.		39 11.7	23 57 11.7	8.81	1.72	+ 0.51	+ 27 52 54.1	21.9	+ 1.3
d)	γ Pegasi		44 5.4	0 2 5.4	8.82	0.81	— 1.66	+ 13 58 21.2	39.8	— 2.0
	κ "		45 23.9	3 23.9	8.82	1.12	— 1.31	+ 18 59 39.1	32.9	— 1.3
		7	49 18.5	7 18.5	8.83	2.98	+ 1.47	+ 42 34 6.0	6.2	+ 4.6
	ρ Androm.	6.5	51 43.3	9 43.3	8.85	— 2.42	+ 1.29	+ 36 45 5.2	0 12.2	+ 3.5
		6	55 20.0	13 20.0	8.86	+ 0.20	+ 1.42	— 3 24 53.2	1 13.5	— 0.7
e)	10 Ceti	6	0 57 26.5	15 26.5	8.86	+ 0.06	+ 0.82	— 1 14 54.0	1 8.0	— 0.7
		7	1 0 58.0	18 58.0	8.87	— 0.21	— 0.39	+ 3 39 35.2	0 57.2	— 1.3
	51 Piscium	6	3 11.0	21 11.0	8.88	0.32	— 0.87	+ 5 45 19.8	53.2	— 1.5
f)	53 "	7	7 30.2	25 30.2	8.89	0.88	— 1.57	+ 14 1 53.0	38.3	— 1.9
	δ Androm.		9 44.5	27 44.5	8.90	— 1.85	+ 1.13	+ 29 39 36.8	0 19.9	+ 1.8
	β Ceti		14 36.5	32 36.5	8.90	+ 1.13	+ 1.42	— 19 9 19.6	2 20.1	— 0.7
	δ Piscium		19 26.7	37 26.7	8.92	— 0.36	— 1.02	+ 6 24 3.9	0 52.1	— 1.5
		8	23 56.1	41 56.1	8.93	1.75	+ 0.71	+ 28 18 5.0	21.4	+ 1.4
	Androm.		26 23.1	43 23.1	8.94	1.34	— 0.95	+ 22 26 30.6	28.3	— 0.4
	"	6	32 57.7	0 50 57.7	8.96	1.92	+ 1.27	+ 30 37 28.6	18.8	+ 2.1
	φ Piscium		43 59.5	1 1 59.5	8.99	1.41	— 0.78	+ 23 25 19.0	27.0	— 0.1
		7	1 47 23.5	1 5 23.5	+ 0 9.00	— 1.92	+ 1.26	+ 30 34 57.6	— 0 18.8	+ 2.1

1784 SEPTEMBER 16

Zero corr. = + 1′ 38″.4.

	Name	Mag.	T	App. sid time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	Sun I limb		12 19 23.6	11 37 23.6				+ 2 34 2.8	— 0 58.4	— 1 1
	Sun II limb		12 21 32.5	11 39 32.5						
	Venus		13 1 2.4	12 19 2.4				— 0 47 36.4	1 5.9	— 0.7
	Mercury		13 53 34.4	13 11 34.4				— 10 37 34.8	34.7	— 0.3
	ι Antinoi	4.5	19 31 57.3	18 49 57.3	+ 0 12.00	+ 0.34	+ 1.83	— 6 2 1.4	1 20.1	— 0.5
	π Sagittarii		38 43.3	18 56 43.3	12.02	+ 1.27	+ 1.51	— 21 20 9.9	2 35.0	— 1.1
	Aquilæ	6	44 40.3	19 2 40.3	12.03	— 0.11	— 0.09	+ 1 55 48.9	1 0.4	— 1.0
	1 Sagittæ		47 51.3	5 51.3	12.05	—1.24	— 1.16	+ 20 50 56.6	0 30.1	— 0.8
g)		6	53 5.3	11 5.3	12.06	+ 0.04	+ 0.60	— 0 39 21.0	1 6.0	— 0.7
	δ Aquilæ		56 27.7	14 27.7	12.07	— 0.15	— 0.23	+ 2 41 17.8	0 58.8	— 1.2
h)			19 58 40.0	16 40.0	12.07	1.16	— 1.26	+ 19 39 52.9	31.6	— 1.2
	7 Anseris	6	20 1 48.4	19 48.4	12.09	1.17	— 1.24	+ 19 49 48.0	31.3	— 1.1
	β Cygni		20 3 52.0	19 21 52.0	+ 0 12.10	— 1.69	+ 0.38	+ 27 29 56.8	— 0 22.1	+ 1.1

a Name should be γ Sagittarii; not γ Aquilæ.
b ζ assumed as that of Lal. 38284.
c Transits over Ts. I and II assumed as recorded over Ts. II and III: and T. I as 23m. 2s; not 23m. 20s.
d ζ assumed as 34° 52′ 46″; not 34° 52′ 16″: and Div. assumed as 37; not 7.
e Div. assumed as 53 7 0; not 53 7 1.
f ζ assumed as 34°; not 33°.
g Div. assumed as 52 12; not 52 11: and Micr. corr. assumed as + 7; not — 7.
h T. III assumed as 59m; not 58m.

1784 SEPTEMBER 16—Continued Zero corr. = + 1′ 38″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
ι Aquilæ		20 7 22.3	19 25 22.3	+ 0 12.10	+ 0.10	+ 0.99	— 1 45 30.6	— 1 8.6	— 0.7
45 Antinoi	6	11 26.0	29 26.0	12.12	+ 0.06	+ 0.79	— 1 6 53.5	1 7.2	— 0.7
46 Aquilæ	6.7	13 58.5	31 58.5	12.12	— 0.67	— 2.90	+ 11 41 3.0	0 42.9	— 2.0
	6	17 1.8	35 1.8	12.13	0.40	— 1.17	+ 7 5 29.2	50.3	— 1.6
	7	20 8.2	38 8.2	12.14	0.58	— 2.40	+ 10 9 24.0	45.3	— 1.8
a "		22 7.4	40 7.4	12.15	0.48	— 1.44	+ 8 17 59.6	48.3	— 1.7
12 Vulpeculæ	7.6	23	41				+ 22 3 25.0	28.6	— 0.5
13 "	6	26 8.9	44 8.9	12.16	1.41	— 0.76	+ 23 30 41.0	26.8	— 0.1
	6.5	27 13.4	45 13.4	12.16	1.43	— 0.71	+ 23 44 50.8	26.5	0.0
a) γ Sagittæ	5	31 2.5	49 2.5	12.17	1.12	— 1.32	+ 18 54 4.6	32.6	— 1.3
	8	33 7.1	51 7.1	12.17	1.55	— 0.22	+ 25 35 19.9	24.3	+ 0.5
	7.8	36 11.1	54 11.1	12.18	1.98	+ 1.34	+ 31 20 39.1	17.8	+ 2.3
	7	37 59.7	55 59.7	12.19	2.00	+ 1.37	+ 31 35 50.0	17.6	+ 2.4
	6	40 12.0	19 58 12.0	12.19	2.30	+ 1.32	+ 35 21 58.8	13.6	+ 3.2
	7.8	42 18.0	20 0 18.0	12.20	1.20	— 1.21	+ 20 16 5.0	30.8	— 1.0
θ Sagittæ	7	43 26.3	1 26.3	12.20	1.22	— 1.20	+ 20 29 14.5	30.6	— 1.0
	7	44 38.4	2 38.4	12.21	1.59	— 0.06	+ 26 9 31.0	23.7	+ 0.7
	7	44 50.4	2 50.4	12.21	1.57	— 0.16	+ 25 49 38.0	24.0	+ 0.7
	6.5	47 59.5	5 59.5	12.22	1.51	— 0.41	+ 24 55 32.3	25.2	+ 0.4
	6.5	48 41.2	6 41.2	12.22	1.67	+ 0.25	+ 27 8 40.4	22.6	+ 1.0
	6	52 13.1	10 13.1	12.23	2.21	+ 1.38	+ 34 17 51.0	14.7	+ 3.0
γ Cygni		20 56 20.7	14 20.7	12.24	2.69	+ 1.29	+ 29 33 8.0	9.3	+ 4.0
		21 1 26.0	19 26.0	12.26	2.52	+ 1.27	+ 37 43 5.2	11.2	+ 3.6
44 "		4 38.9	22 38.9	12.27	2.37	+ 1.36	+ 36 11 45.8	12.7	+ 3.3
ι Delphini		9 20.1	27 20.1	12.27	0.61	— 2.70	+ 10 37 21.8	44.7	— 1.9
		9 23.2	27 23.2	12.27					
10 "	7.6	13 3.1	31 3.1	12.29	0.80	— 1.68	+ 13 48 45.7	39.7	— 2.0
b) α Cygni		15 56.4	33 56.4	12.29	3.19	+ 1.79	+ 44 29 33.5	4.3	+ 5.0
ε "		19 20.0	37 20.0	12.30	2.12	+ 1.40	+ 33 9 3.4	15.9	+ 2.7
31 Vulpeculæ	6.5	24 45.6	42 45.6	12.32	1.60	— 0.04	+ 26 16 52.2	23.6	+ 0.8
32 Anseris	6	21 27 13.6	20 45 13.6	12.33	— 1.67	+ 0.28	+ 27 13 42.6	0 22.5	+ 1.1
β Aquarii		22 1 59.3	21 19 59.3	12.43	+ 0.37	+ 1.86	— 6 30 42.3	1 21.9	— 0.5
ε Capricorni		6 46.2	24 46.2	12.44	1.21	+ 1.44	— 20 24 17.7	2 28.4	— 0.9
γ "		9 54.3	27 54.3	12.45	1.03	+ 1.59	— 17 36 53.6	2 9.5	— 0.6
d "	6.7	13 5.1	31 5.1	12.46	+ 0.89	+ 1.62	— 15 22 3.8	1 56.8	— 0.5
ε Pegasi							+ 8 53 7.0	0 47.5	— 1.8
		18 8.0	36 8.0	12.47	— 0.09	— 0.05	+ 1 41 29.4	1 1.1	— 1.0
		21 45.7	39 45.7	12.48	0.94	— 1.48	+ 16 16 43.6	0 36.3	— 1.8
15 "	6	24 44.3	42 44.3	12.48	1.70	+ 0.47	+ 27 46 26.7	21.9	+ 1.2
	8	30 59.7	48 59.7	12.50	1.78	+ 0.89	+ 28 47 34.8	20.8	+ 1.5
c)	7	34 8.7	52 8.7	12.51	— 0.86	— 1.57	+ 14 56 29.6	0 38.2	— 1.9
ι Aquarii	4	36 34.2	54 34.2	12.52	+ 0.86	+ 1.60	— 14 54 0.0	1 54.6	— 0.5
e "		40 52.8	21 58 52.8	12.53	0.72	+ 1.61	— 12 36 44.7	44.1	— 0.3
θ "		47 14.2	22 5 14.2	12.55	0.51	+ 1.86	— 8 50 50.0	29.7	— 0.4
5 "	6	50 37.6	8 37.6	12.55	0.51	+ 1.86	— 8 53 44.0	29.7	— 0.4
Jupiter		52 34.5	10 34.5	12.56	+ 0.73	+ 1.60	— 12 42 6.9	1 44.6	— 0.3
34 Pegasi	6	22 57 29.2	15 29.2	12.58	— 0.19	— 0.33	+ 3 17 39.6	0 58.0	— 1.2
37 "	6	23 0 54.2	18 54.2	12.58	0.19	— 0.34	+ 3 20 8.0	57.9	— 1.2
	7.8	1 36.1	19 36.1	12.59	0.18	— 0.32	+ 3 13 44.0	58.1	— 1.2
	7.8	5 57.1	23 57.1	12.60	2.69	+ 1.29	+ 39 41 25.9	9.2	+ 4.1
d)	6.7	8 53.0	26 53.0	12.61	2.23	+ 1.37	+ 34 31 11.8	14.6	+ 3.0
	6.7	11 40.8	29 40.8	12.62	2.40	+ 1.30	+ 36 27 14.8	12.5	+ 3.4
η Pegasi		14 45.4	32 45.4	12.62	1.81	+ 1.00	+ 29 4 48.4	20.5	+ 1.6
λ "		18 1.1	36 1.1	12.63	1.34	— 0.95	+ 22 25 11.4	28.3	— 0.4
μ "		21 28.8	39 28.8	12.65	— 1.41	— 0.77	+ 23 27 4.3	0 27.0	— 0.1
δ Aquarii		24 58.8	42 58.8	12.66	+ 0.99	+ 1.64	— 16 57 1.9	2 5.7	— 0.5
Foll. Fomalhaut	5.4	29 29.5	47 29.5	12.67	+ 1.92	+ 5.02	— 30 33 16.4	4 53.0	— 6.0
β Pegasi		35 11.5	53 11.5	12.69	— 1.65	+ 0.16	+ 26 54 2.3	0 23.0	+ 1.0
4 Androm.		39 41.8	22 57 41.8	12.70	3.26	+ 2.07	+ 45 12 1.0	3.6	+ 5.1
	7.8	42 22.8	23 0 22.8	12.71	2.96	+ 1.45	+ 42 21 52.0	6.5	+ 4.6
9 "		50 4.1	8 4.1	12.72	2.78	+ 1.33	+ 40 34 33.2	8.3	+ 4.2
10 "	2	51 30.6	9 30.6	12.73	2.81	+ 1.36	+ 40 52 38.6	8.0	+ 4.3
	7.8	55 42.7	13 42.7	12.74	2.76	+ 1.33	+ 40 24 30.4	8.5	+ 4.2
13 "		23 58 38.5	23 16 38.5	+ 0 12.74	— 2.90	+ 1.40	+ 41 42 10.3	— 0 7.2	+ 4.4

a Div. assumed as 31 15 2; not 31 15 1.
b ζ assumed as 4° 21′; not 4° 16′.
c Div. assumed as 36 2 11; not 36 2 13.
d ζ assumed as 14° 19′; not 14° 15′.

1784 SEPTEMBER 16—Continued Zero corr. = + 1′ 38″.4.

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
14 Androm. .		0 2 34.7	23 20 34.7	+ 0 12.76	− 2.54	+ 1.27	+ 38 1 55.8	− 0 10.9	+ 3.7
15 " . .		5 58.2	23 58.2	12.77	2.63	+ 1.28	+ 39 1 36.2	9.9	+ 3.9
74 Pegasi . .		8 37.6	26 37.6	12.78	1.91	− 1.51	+ 15 37 18.0	37.3	− 1.8
76 " .		13 40.2	31 40.2	12.79	1.88	− 1.56	+ 15 7 42.2	38.0	− 1.9
φ " . .		23 24.5	41 24.5	12.81	1.05	− 1.40	+ 17 54 36.9	34.1	− 1.5
ψ " . .		28 39.2	46 39.2	12.83	1.44	− 0.67	+ 23 55 36.8	26.5	0.0
85 " . .		32 47.3	50 47.3	12.85	1.57	− 0.13	+ 25 55 28.8	24.1	+ 0.7
α Androm. .		39 7.3	23 57 7.3	12.86	1.72	+ 0.50	+ 27 52 51.4	21.9	+ 1.3
γ Pegasi . .		44 1.5	0 2 1.5	12.88	0.81	− 1.66	+ 13 58 21.8	39.7	− 2.0
θ Androm. .		47 43.4	5 43.4	12.89	2.49	+ 1.27	+ 37 27 40.5	11.5	+ 3.6
a)		49 14.7	7 14.7	12.89	2.99	+ 1.47	+ 42 34 10.0	6.3	+ 4.6
ρ " . .	6	51 39.3	9 39.3	12.90	2.43	+ 1.29	+ 36 45 4.0	12.2	+ 3.5
	7.8	55 13.3	13 13.3	12.92	1.89	+ 1.20	+ 30 9 34.0	19.3	+ 1.9
	6	0 58 33.0	16 33.0	12.92	3.04	+ 1.54	+ 43 10 31.7	5.7	+ 4.7
	7.8	1 2 29.5	20 29.5	12.93	0.99	− 1.44	+ 16 54 18.8	35.6	− 1.7
b)	7	6 49.0	24 49.0	12.94	1.57	− 0.02	+ 26 2 59.0	24.0	+ 0.7
δ " . .		9 40.6	27 40.6	12.95	− 1.85	+ 1.13	+ 29 39 35.5	0 19.9	+ 1.8
β Ceti . .		14 32.5	32 32.5	12.96	+ 1.13	+ 1.42	− 19 9 14.6	2 20.1	− 0.7
δ¹ Piscium .		18 57.8	36 57.8						
δ² " . .		19 21.1	37 21.1	12.98	− 0.36	− 1.02	+ 6 24 5.4	0 52.1	− 1.5
	7.8	23 52.2	41 52.2	12.99	1.75	+ 0.70	+ 28 18 0.8	21.4	+ 1.4
μ Androm. .		26 40.9	44 40.9	13.00	2.48	+ 1.27	+ 37 18 16.6	11.6	+ 3.6
		29	47				+ 43 31 59.0	5.3	+ 4.8
	7.8	1 32 32.8	0 50 32.8	13.02	3.38	+ 2.46	+ 46 11 17.0	2.7	+ 5.3
	6	2 0 8.0	1 18 8.0	13.09	1.01	− 1.42	+ 17 13 18.6	35.2	− 1.7
ν " . .		6 3.3	24 3.3	13.11	2.76	+ 1.32	+ 40 17 49.0	8.6	+ 4.2
	7	9 17.7	27 17.7	13.12	2.68	+ 1.29	+ 39 33 39.0	9.2	+ 4.0
	5	9 45.9	27 45.9	13.13	2.67	+ 1.29	+ 39 27 21.5	9.5	+ 4.0
	7.8	11 47.8	29 47.8	13.13	2.66	+ 1.28	+ 39 15 34.0	9.6	+ 3.9
3 Arietis . .	6.7	16 46.7	34 46.7	13.14	0.95	− 1.48	+ 16 18 48.4	36.4	− 1.8
	6	20 7.2	38 7.2	13.15	1.26	− 1.11	+ 21 10 52.4	29.9	− 0.8
c) γ " . .		23 35.4	41 35.4	13.16	1.07	− 1.37	+ 18 13 4.6	33.8	− 1.5
	6.7	25 43.1	43 43.1	13.17	1.35	− 0.93	+ 22 29 53.0	28.3	− 0.4
ι " . .	6	27 28.0	45 28.0	13.17	0.98	− 1.45	+ 16 44 42.7	0 35.8	− 1.7
α Piscium .		32 43.6	50 43.6	13.19	0.09	− 0.04	+ 1 42 40.4	1 1.4	− 1.0
κ Arietis . .		36 23.6	54 23.6	13.21	1.29	− 1.07	+ 21 35 52.8	0 29.4	− 0.6
16 " . .	6	40 33.9	1 58 33.9	13.22	1.09	− 1.35	+ 18 27 42.2	33.5	− 1.4
	8	43 46.9	2 1 46.9	13.22	1.09	− 1.34	+ 18 34 53.2	33.3	− 1.4
	7.8	46 53.9	4 52.9	13.23	− 1.36	− 0.90	+ 22 44 47.6	0 28.1	− 0.3
	6.7	50 14.8	8 14.8	13.24	+ 0.23	+ 1.56	− 3 57 55.4	1 15.1	− 0.6
25 " . .	5	55 7.6	13 • 7.6	13.26	− 0.55	− 1.98	+ 9 36 59.0	0 46.6	− 1.8
26 " . .	6	2 57 47.3	2 15 47.2	+ 0 13.26	− 0.53	− 1.75	+ 9 13 24.2	− 0 47.3	− 1.8

1784 SEPTEMBER 17 Zero corr. = + 1′ 42″.4.

Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ — φ	Refr.	q′
Sun I limb		12 22 54.7	11 40 54.7				+ 1 38 48.0	− 1 0.3	− 1.0
Sun II limb		12 25 4.0	11 43 4.0				+ 2 10 49.0	0 59.2	− 1.0
Venus . .		13 5 29.7	12 23 29.7				− 1 18 22.2	1 6.9	− 0.7
Mercury .		13 56 43.7	13 14 43.7				− 11 4 34.2	36.1	− 0.3
δ Ophiuchi .		16 44 47.7	16 2 47.7	+ 0 15.79	+ 0.18	+ 1.37	− 3 8 9.2	11.7	− 0.7
ε " . .		48 39.4	6 39.4	15.80	0.23	+ 1.60	− 4 9 41.4	1 14.2	− 0.6
Antares .		16 57 53.5	15 53.5	15.82	+ 1.57	+ 3.12	− 25 54 43.6	3 22.4	− 2.6
β Herculis .		17 2 44.8	16 20 44.8	15.83	− 1.30	− 1.02	+ 21 57 5.2	0 28.5	− 0.5
d)		18 28 53.2	17 46 53.2	16.03	+ 0.56	+ 1.80	− 9 44 9.0	1 31.5	− 0.4
τ Ophiuchi .		33 4.2	51 4.2	16.05	+ 0.46	+ 1.88	− 8 10 10.8	1 26.4	− 0.5
6 Herculis .		40 36.9	17 58 36.9	16.07	− 1.91	+ 1.26	+ 30 31 14.8	0 18.7	+ 2.0
A " . .		45 33.8	18 3 33.8	16.06	− 1.96	+ 1.34	+ 31 20 28.6	0 17.7	+ 2.3
δ Sagittarii .		48 50.9	6 50.9	16.06	+ 1.86	+ 4.81	− 29 51 22.9	4 32.2	− 5.4
ε " . .		51 29.5	9 29.5	16.09	2.21	+ 5.40	− 34 22 32.2	7 16.8	− 9.5
λ " . .		18 56 21.5	18 14 21.5	+ 0 16.10	+ 1.54	+ 2.91	− 25 29 52.4	3 17.3	− 2.4
ζ Lyræ . .							+ 37 22 4.0	− 0 11.5	+ 3.6

a Transit over T. III assumed as recorded over T. II.
b Div. assumed as 24 5 2; not 24 5 1.
c T. I assumed as 23m.; not 22m.
d Hour assumed as 17; not 16.

1784 SEPTEMBER 17—Continued Zero corr. = + 1′ 42″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
			19 21 46.8	18 39 46.8	+ 0 16.16	+ 0.20	+ 1.45	− 3 33 46.3	− 1 12.9	− 0.6
	γ Lyræ . .							+ 32 17 33.0	0 16.8	+ 2.6
	62 e Serpentis .	6	26 43.7	44 43.7	16.17	− 0.36	− 1.00	+ 6 20 47.5	51.5	− 1.5
			30 41.1	48 41.1	16.19	0.78	− 1.70	+ 13 36 52.2	39.9	− 2.0
								+ 13 20 0.6	40.3	− 2.0
		6.7	40 5.3	58 5.3	16.20	0.96	− 1.47	+ 16 31 43.8	0 35.7	− 1.7
		6	40 49.1	18 58 49.1	16.21	0.96	− 1.47	+ 16 30		
	21 Aquilæ .	5	44 36.2	19 2 36.2	16.21	− 0.11	− 0.09	+ 1 55 50.9	1 0.2	− 1.0
	Sag.764 May	6.5	49 24.7	7 24.7	16.22	+ 1.35	+ 1.79	− 22 46 7.2	2 47.6	− 1.4
	Jupiter .		19 56 47.4	14 47.4	16.24	1.33	+ 1.69	− 22 21 57.2	2 44.0	− 1.3
	ι Antinoi .		20 7 18.5	25 18.5	16.26	0.10	+ 0.99	− 1 45 30.6	1 8.5	− 0.7
		7	9 5.0	27 5.0	16.26	0.01	+ 0.39	− 0 8 14.4	4.8	− 0.8
	45 " . .		11 22.2	29 22.2	16.27	+ 0.06	+ 0.78	− 1 6 54.0	1 7.0	− 0.7
	47 Aquilæ .		14 14.1	32 14.1	16.27	− 0.65	− 3.00	+ 11 19 3.7	0 43.4	− 1.9
	49 " . .	6	16 58.0	34 58.0	16.28	0.40	− 1.17	+ 7 5 28.2	50.4	− 1.6
a)	γ " . .							+ 10 5 12.0	45.3	− 1.8
		7	20 4.2	38 4.2	16.29	0.58	− 2.40	+ 10 9 26.0	45.2	− 1.8
	α " . .		22 3.5	40 3.5	16.30	0.47	− 1.44	+ 8 17 57.6	48.3	− 1.7
		6.7	23 34.7	41 34.7	16.30	1.31	− 1.01	+ 22 3 21.3	28.6	− 0.5
	13 Vulpeculæ		26 5.6	44 5.6	16.31	1.40	− 0.76	+ 23 30 36.8	26.8	− 0.1
		6	27 10.0	45 10.0	16.31	1.42	− 0.71	+ 23 44 51.2	26.5	0.0
	η Cygni . .	5	30 0.0	48 0.0	16.32	2.21	+ 1.37	+ 34 29 54.2	14.5	+ 3.0
		8	30 53.6	48 53.6	16.32	2.21	+ 1.37	+ 34 26 34.0	14.5	+ 3.0
	16 Vulpeculæ	6	34 24.2	52 24.2	16.33	1.45	− 0.60	+ 24 11 39.4	25.9	+ 0.1
		6	34 40.2	52 40.2	16.33	1.47	− 0.56	+ 24 19 37.8	25.8	+ 0.1
		7	36 6.5	54 6.5	16.33	1.97	+ 1.34	+ 31 20 39.7	17.8	+ 2.3
		7.6	37 55.3	55 55.3	16.34	1.99	+ 1.37	+ 31 35 49.0	17.5	+ 2.4
	Vulpeculæ	6	39	19 57				+ 22 59 12.0	27.4	− 0.2
		7	42 14.0	20 0 14.0	16.35	1.19	− 1.21	+ 20 16 6.0	30.8	− 1.0
		8	42 10.7	0 10.7	16.35	1.19	− 1.21			
	Sagittæ .	7						+ 20 29 16.6	30.6	− 1.0
		8	46 13.3	4 13.3	16.36	1.41	− 0.75	+ 23 34 40.0	26.7	− 0.1
	24 Vulpeculæ	6	49 21.5	7 21.5	16.36	1.44	− 0.65	+ 23 59 58.0	26.2	0.0
	34 Cygni . .	6	52 9.2	10 9.2	16.37	2.20	+ 1.38	+ 34 17 47.2	14.7	+ 2.9
b)		7	20 57 9.0	15 9.0	16.38	0.12	− 0.14	+ 2 15 22.5	59.6	− 1.0
c)	1 Delphini .	6.7	23 1 47.1	19 47.1	16.39	0.58	− 2.41	+ 10 10 35.0	45.3	− 1.8
		6	4 32.3	22 32.3	16.39	1.51	− 0.36	+ 25 4 4.4	25.0	+ 0.4
	η Delphini .	6	5	23				+ 12 17 7.0	42.0	− 2.0
d)			7 2.3	25 2.3	16.41	0.80	− 1.66	+ 13 55 38.6	39.5	− 2.0
e)	β " . .		9 14.7	27 14.7	16.41	0.80	− 1.67	+ 13 50 32.4	39.7	− 2.0
	α Cygni . .		15 52.4	33 52.4	16.42	3.18	+ 1.80	+ 44 29 35.8	4.3	+ 5.0
	ε " . .		19 15.6	20 37 15.6	16.43	2.11	+ 1.40	+ 33 9 4.7	15.9	+ 2.7
			24 14.6	22 42 14.6	16.73	− 0.91	− 1.51	+ 15 41 20.7	0 37.1	− 1.8
	Fomalhaut		27 20.8	45 20.8	16.73	+ 1.92	+ 5.06	− 30 42 3.1	4 56.9	− 6.1
f)		6	29 23.0	47 23.0	16.74	+ 1.91	+ 5.01	− 30 33 20.0	4 53.0	− 6.0
		7	33 43.2	51 43.2	16.75	− 0.87	− 1.57	+ 15 3 48.6	0 38.1	− 1.9
		7	37 23.6	55 23.6	16.75	1.01	− 1.42	+ 17 20 22.6	34.9	− 1.7
	56 Pegasi . .	6.7	38	56				+ 24 17 34.0	26.0	+ 0.1
		7.8	41 32.2	22 59 32.2	16.77	2.54	+ 1.27	+ 38 16 56.6	10.6	+ 3.7
		6.7	45 41.6	23 3 41.6	16.77	1.76	+ 0.82	+ 28 34 57.0	21.0	+ 1.5
g)		7	51 20.3	9 20.3	16.78	1.29	− 1.02	+ 21 54 0.8	29.0	− 0.5
		7	53 38.2	11 38.2	16.79	1.48	− 0.46	+ 24 43 22.2	25.5	+ 0.3
	67 " . .	6.5	56 5.6	14 5.6	16.80	1.94	+ 1.32	+ 31 10 59.6	18.2	+ 2.2
		7	23 59 25.4	17 25.4	16.81	1.09	− 1.33	+ 18 41 17.0	33.1	− 1.4
		6.7	0 2 50.3	20 50.3	16.81	1.65	+ 0.28	+ 27 11 57.3	22.6	+ 1.0
	71 " . .	6	4 28.8	22 28.8	16.81	1.26	− 1.10	+ 21 17 45.8	29.7	− 0.8
		7.8	6 57.0	24 57.0	16.82	1.39	− 0.79	+ 23 21 13.4	27.2	− 0.1
	ι Andromedæ	6	9 22.8	27 22.8	16.83	2.91	+ 1.43	+ 42 3 9.6	6.8	+ 4.5
	κ " . .	5.6	11 37.0	29 37.0	16.84	3.02	+ 1.53	+ 43 7 4.4	5.7	+ 4.7
	78 Pegasi . .	6.5	15 57.2	32 57.2	16.85	1.73	+ 0.65	+ 28 9 0.6	21.5	+ 1.3
		7	16 22.6	34 22.6	16.85	1.12	− 1.30	+ 19 12 26.0	32.4	− 1.3
	82 " . .	6.5	0 23 25.7	23 41 25.7	+ 0 16.86	− 0.55	− 2.12	+ 9 44 21.1	− 0 46.2	− 1.8

a ζ assumed as 38° 45′ 53″; not 38° 45′ 23″.
b ζ assumed as 46° 35′ 43″; not 46° 35′ 13″.
c ζ assumed as 38° 40′ 28″; not 38° 40′ 48″.
d Div. assumed as 37; not 27.
e Div. assumed as 37 6; not 37 5.
f Ts. II and III assumed as 29m. 23s. and 29m. 49s.5; not 29m. 13s. and 29m. 39s.5, respectively.
g ζ assumed as 26°; not 27°.

1784 SEPTEMBER 17—Continued Zero corr. = + 1′ 42″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		6.7	0 25 53.3	23 43 53.3	+ 0 16.87	— 0.33	— 0.90	+ 5 51 54.5	— 0 53.0	— 1.5
	ψ Pegasi . .		28 35.8	46 35.8	16.87	1.43	— 0.67	+ 23 55 40.2	26.5	0.0
		6.7	31 11.0	49 11.0	16.88	1.56	— 0.20	+ 25 42 20.8	24.4	+ 0.6
	85 " . .	6	32 43.8	50 43.8	16.89	1.57	— 0.13	+ 25 55 27.2	24.1	+ 0.7
		6.7	35 39.3	53 39.3	16.89	1.54	— 0.27	+ 25 25 54.4	24.7	+ 0.5
	α Androm. .		39 4.0	23 57 4.0	16.90	1.71	+ 0.52	+ 27 52 51.4	21.9	+ 1.3
a)		7	45 42.5	0 3 42.5	16.91	1.89	+ 1.23	+ 30 19 17.0	19.1	+ 2.0
b)	θ " . .	6.5	47 39.5	5 39.5	16.92	2.47	+ 1.27	+ 37 27 42.3	11.5	+ 3.6
		7	50 11.6	8 11.6	16.93	2.65	+ 1.29	+ 39 30 36.8	9.4	+ 4.0
		7	55 9.5	13 9.5	16.94	1.88	+ 1.20	+ 30 9 32.4	19.4	+ 1.9
		6	0 58 29.9	16 29.9	16.94	3.02	+ 1.54	+ 43 10 34.7	5.7	+ 4.7
		6	1 1 47.5	19 47.5	16.95	2.05	+ 1.39	+ 32 22 12.4	17.0	+ 2.6
		6.7	5 34.6	23 34.6	16.95	0.70	— 2.38	+ 12 10 17.0	42.6	— 2.0
		6	6 34.8	24 34.8	16.96	0.69	— 2.57	+ 12 1 1.7	42.9	— 2.0
	Piscium .	6	10 23.8	28 23.8	16.97	1.19	— 1.21	+ 20 14 17.3	31.3	— 1.0
		7	11 58.9	29 58.9	16.98	1.40	— 0.78	+ 23 25 45.2	27.2	— 0.1
		7	16 5.7	34 5.7	16.99	3.08	+ 1.62	+ 43 39 23.4	5.2	+ 4.8
		7.8	20 7.2	38 7.2	16.99	3.10	+ 1.65	+ 43 47 57.4	5.1	+ 4.8
		7	23 26.8	41 26.8	17.00	2.36	+ 1.30	+ 36 13 31.0	12.8	+ 3.3
	μ Andromedæ		26 37.2	44 37.2	17.01	2.47	+ 1.27	+ 37 18 15.0	11.7	+ 3.5
	Double Star	6.7	1 29 42.3	0 47 42.3	+ 0 17.02	— 3.06	+ 1.59	+ 43 31 23.0	— 0 5.3	+ 4.8

1784 SEPTEMBER 18 Zero corr. = + 1′ 35″.9.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
c)	Sun I limb		0 26 26.6	23 44 26.6				+ 1 15 29.0	— 1 1.2	— 0.9
	Sun II limb		0 28 35.6	23 46 35.6				+ 1 47 29.4	1 0.0	— 1.0
d)	1 Delphini .	7	21 1 44.2	20 19 44.2	+ 0 19.76	— 0.57	— 2.41	+ 10 10 37.6	0 45.0	— 1.8
	ε " . .	4	4 40.4	22 40.4	19.76	0.59	— 2.67	+ 10 34 7.4	44.4	— 1.9
	ζ " . .	6	6 59.6	24 59.6	19.77	0.80	— 1.66	+ 13 55 38.1	39.2	— 2.0
	β " . .	4	9	27				+ 13 50 33.0	39.4	— 2.0
	29 Anseris .	6	10 5.	28 5.				+ 20 26 17.0	30.5	— 1.0
		7	13	31				+ 16 44 39.0	35.3	— 1.7
	δ Delphini .	5.6	15 5.	33 5.				+ 14 17 56.0	38.7	— 2.0
		6.	16 5.	34 5.				+ 24 29 36.0	25.5	+ 0.2
	Double Star	5	18 5.	36 5.				+ 15 20 37.0	37.2	— 1.9
	31 Anseris .	6	24 37.8	42 37.8	19.79	1.59	— 0.04	+ 26 16 56.2	23.4	+ 0.8
		6.7	27 6.4	45 6.4	19.80	1.66	+ 0.28	+ 27 13 43.6	22.3	+ 1.1
		6	30 22.5	48 22.5	19.80	1.27	— 1.08	+ 21 29 10.6	29.1	— 0.7
		6	34 36.5	52 36.5	19.81	0.79	— 1.66	+ 13 52 33.8	39.4	— 2.0
		6.7	39 10.4	57 10.4	19.82	0.84	— 1.58	+ 14 47 27.7	38.0	— 1.9
		7	41 13.4	20 59 13.4	19.82	1.81	+ 1.07	+ 29 19 31.6	20.0	+ 1.7
	ζ Cygni . .		45 29.2	21 3 29.2	19.82	1.81	+ 1.07	+ 29 19 56.7	20.0	+ 1.7
	υ " . .		50 46.8	8 46.8	19.83	— 2.17	+ 1.39	+ 33 58 44.7	0 15.0	+ 2.9
	ζ Capricorni		21 55 59.2	13 59.2	19.84	+ 1.39	+ 1.98	— 23 18 45.4	2 53.1	— 1.6
e)	β Aquarii .		22 1 52.4	19 52.4	19.85	0.36	+ 1.86	— 6 30 39.8	1 21.2	— 0.5
	ε Capricorni		6 38.8	24 38.8	19.86	+ 1.19	+ 1.44	— 20 24 21.0	2 27.4	— 0.9
	6 Pegasi . .		10 18.8	28 18.8	19.86	— 0.08	+ 0.03	+ 1 16 36.4	1 1.6	— 0.9
f)	λ Capricorni		16 35.5	21 34 35.5	19.86	+ 0.70	+ 1.62	— 12 20 48.0	42.3	— 0.3
	Jup. I limb		56 36.3	22 14 36.3						
g)	Jupiter, cent.		56 38.4	14 38.4	19.93	+ 0.73	+ 1.60	— 12 46 41.6	1 43.9	— 0.3
	Jup. II limb		22 56 40.2	14 40.2						
	η Pegasi . .		23 14 38.5	32 38.5	19.96	— 1.79	+ 1.01	+ 29 4 49.4	0 20.2	+ 1.6
	λ " . .	4	17 54.5	35 54.5	19.96	1.33	— 0.95	+ 22 25 13.0	28.1	— 0.4
h)	σ " . .		23 13.5	41 13.5	19.97	0.49	— 1.55	+ 8 40 56.4	47.5	— 1.8
i)	ρ " . .		26 6.8	44 6.8	19.97	0.43	— 1.30	+ 7 39 42.0	49.3	— 1.7
	o Andromedæ		33 45.8	51 45.8	19.98	2.80	+ 1.37	+ 41 8 54.4	7.7	+ 4.3
	a " . .							+ 14 2 11.0	0 39.4	— 2.0
	A Piscium		39 21.0	22 57 21.0	20.00	0.06	+ 0.08	+ 0 57 7.3	1 2.4	— 0.9
	γ " . .							+ 2 6 1.0	1 0.0	— 1.0
	b " . .		51 4.8	23 9 4.8	20.01	— 0.23	— 0.49	+ 4 11 59.7	0 55.7	— 1.3
	κ " . .		23 57 35.3	23 15 35.3	+ 0 20.02	0.00	+ 0.33	+ 0 4 23.8	— 1 4.3	— 0.8

a Transit over T. II assumed as 45m. 42s.; not 45m. 41s.
b Div. assumed as 12 2; not 12 14.
c T. II assumed as 26s.5; not 36s.5.
d ζ assumed as 38° 40′ 26″; not 38° 40′ 46″.
e Min. assumed as 1 and 2; not 2 and 3.
f T. II assumed as 35s.5; not 25s.5.
g ζ assumed as 61° 37′ 48″; not 61° 37′ 18″.
h T. II assumed as 23m.; not 22m.
i Div. assumed as 43 15; not 43 14.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q'
	1784 SEPTEMBER 20								Zero corr. = + 1′ 41″.9.	
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		6	5 37 42.6	4 55 42.6	— 0 24.35	+ 0.28	+ 1.73	— 4 57 37.0	— 1 16.5	— 0.5
a)	Rigel . .		45 46.3	5 3 46.3	24.36	0.47	+ 1.87	— 8 27 45.4	27.0	— 0.5
		6	52 23.3	10 23.3	24.38	0.04	+ 0.58	— 0 36 53.5	5.4	— 0.7
b)		6	5 55 9.1	13 9.1	24.39	0.06	+ 0.79	— 1 7 3.7	6.6	— 0.7
	δ Orionis .		6 2 37.5	20 37.5	24.40	0.02	+ 0.53	— 0 28 43.5	5.1	— 0.8
	ζ " . .		11 29.9	29 29.9	24.41	0.12	+ 1.08	— 2 4 30.8	1 8.8	— 0.7
	α Columbæ .		13 20.3	31 20.3	24.42	2.16	+ 5.40	— 34 6 5.3	6 59.1	— 9.2
	γ Leporis .		17 3.0	35 3.0	24.43	+ 1.32	+ 1.72	— 22 30 23.2	2 43.8	— 1.4
	Tauri . .	6	21 26.4	39 26.4	24.44	— 1.67	+ 0.39	+ 27 31 20.8	0 21.9	+ 1.2
	β Aurigæ .		6 25 22.6	5 43 22.6	24.44	3.19	+ 1.93	+ 44 52 30.3	0 3.9	+ 5.1
c)	Sun I limb		12 33 31.5	11 51 31.5	25.12	— 0.03	+ 0.21	+ 0 28 37.9	1 2.9	— 0.8
	Sun II limb		12 35 40.5	11 53 40.5	— 0 25.12	0.00	+ 0.35	+ 0 0 46.4	— 1 3.9	— 0.8
	1784 SEPTEMBER 24								Zero corr. = + 1′ 42″.0.	
	Sun II limb		0 49 53.6	0 7 53.6				— 1 4 57.6	— 1 6.8	— 0.7
								— 0 32 49.2	1 5.7	— 0.7
	γ Geminorum		7 6 42.8	6 24 42.8	+ 0 36.24	— 0.95	— 1.47	+ 16 33 2.8	0 35.6	— 1.7
	ε " . .		12 6.5	30 6.5	36.25	— 1.51	— 0.30	+ 25 18 23.4	0 24.6	+ 0.5
	Sirius . .		7 17 1.1	6 35 1.1	+ 0 36.26	+ 0.94	+ 1.67	— 16 25 19.2	— 2 1.4	— 0.5
	1784 SEPTEMBER 26								Zero corr. = + 1′ 43″.0.	
		7	0 49 48.2	0 7 48.2	+ 0 40.57	— 2.63	+ 1.29	+ 39 30 38.8	— 0 9.4	+ 4.0
		6	0 58 5.4	16 5.4	40.58	2.98	+ 1.54	+ 43 10 35.8	5.7	+ 4.7
		6	1 1 24.2	0 19 24.2	40.59	2.01	+ 1.39	+ 32 22 15.9	17.0	+ 2.6
d)	Regulus .		10 38 14.0	9 56 14.0	+ 0 41.57	— 0.75	— 1.79	+ 12 59 50.3	0 41.3	— 2.0
	Sun II limb		0 34.5	18 34.5				— 1 43 4.6	— 1 9.6	— 0.7
	1784 SEPTEMBER 28								Zero corr. = + 1′ 35″.4.	
		7	19 51 39.9	19 9 39.9	+ 0 44.88	— 1.59	+ 0.14	+ 26 51 29.6	— 0 22.7	+ 1.0
		7	55 46.8	13 46.8	44.89	2.05	+ 1.40	+ 33 5 46.1	15.8	+ 2.7
		7	56 43.6	14 43.6	44.89	2.02	+ 1.40	+ 32 46 57.7	16.1	+ 2.7
		6.7	19 59 40.7	17 40.7	44.90	2.28	+ 1.31	+ 35 52 27.2	13.0	+ 3.3
	β Cygni . .	3.4	20 3 19.5	21 19.5	44.90	1.64	+ 0.39	+ 27 29 57.2	21.9	+ 1.1
		7	9 18.1	27 18.1	44.91	0.16	— 0.27	+ 2 53 45.6	58.0	— 1.2
		7.8	13 39.2	19 31 39.2	44.92	0.44	— 1.34	+ 7 52 20.2	48.7	— 1.7
		7.8	22 0.3	20 40 0.3	45.02	2.18	+ 1.35	+ 34 45 18.2	14.1	+ 3.1
e)		7	25 22.7	43 22.7	45.02	1.73	+ 0.91	+ 28 49 43.0	20.5	+ 1.6
		6	26 40.6	44 40.6	45.02	1.62	+ 0.28	+ 27 13 43.0	22.3	+ 1.1
		6	29 57.7	47 57.7	45.02	1.24	— 1.08	+ 21 29 11.1	29.1	— 0.7
		6.7	33 56.4	51 56.4	45.03	2.22	+ 1.33	+ 35 10 7.6	13.6	+ 3.1
		7	36 1.6	54 1.6	45.03	2.44	+ 1.27	+ 37 47 33.8	11.0	+ 3.7
	61 Cygni . .	6	38 33.3	56 33.3	45.04	2.43	+ 1.27	+ 37 40 43.4	11.1	+ 3.6
		6	40	20 59				+ 29 19 32.0	19.9	+ 1.7
		7	45 28.3	21 3 28.3	45.05	2.19	+ 1.34	+ 34 53 57.8	14.0	+ 3.1
	υ " . .		50 22.0	8 22.0	45.05	2.12	+ 1.39	+ 33 58 47.7	14.9	+ 2.9
		7.8	53 55.2	11 55.2	45.06	2.58	+ 1.29	+ 39 25 41.3	9.3	+ 4.0
		7.8	56 27.4	14 27.4	45.07	1.82	+ 1.19	+ 29 59 58.4	19.2	+ 1.9
		6	20 59 29.0	17 29.0	45.07	1.58	+ 0.08	+ 26 39 38.7	22.9	+ 0.9
		6.7	22 3 24.8	21 24.8	45.07	1.33	— 0.87	+ 22 53 10.2	27.5	— 0.2
			7 16.7	25 16.7	45.08	2.42	+ 1.27	+ 37 33 15.3	11.2	+ 3.6
f)		7	10 30.6	28 30.6	45.09	3.01	+ 1.63	+ 43 42 44.7	5.1	+ 4.8
		6.7	13 2.6	31 2.6	45.09	2.87	+ 1.45	+ 42 16 43.2	6.5	+ 4.5
		7	22 15 45.9	21 33 45.9	+ 0 45.10	— 2.66	+ 1.32	+ 40 9 16.0	— 0 8.6	+ 4.1

a ζ assumed as 57° 18′; not 57° 19′.
b Div. assumed as 52 4 13; not 52 9 14.
c ζ assumed as 48° 22′; not 48° 2′.
d ζ assumed as 35°; not 45°.
e T. III assumed as 25m.; not 27m.
f T. II discordant and rejected.

1784 SEPTEMBER 28—Continued Zero corr. = + 1′ 35″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	22 20 42.4	21 38 42.4	+ 0 45.10	— 1.12	— 1.28	+ 19 27 6.0	— 0 31.7	— 1.2
	7	21 ½	39 ½				+ 29 9 35.0	20.1	+ 1.6
a)	6.7	24 49.2	42 49.2	45.11	1.06	— 1.33	+ 18 38 41.8	32.7	— 1.4
18 Pegasi . .	6	30 40.4	48 40.4	45.12	0.31	— 0.85	+ 5 40 57.4	52.6	— 1.5
	7	22 35 13.4	21 53 13.4	45.13	0.51	— 1.73	+ 9 11 37.0	46.7	— 1.8
	7	0 17 56.7	23 35 56.7	45.28	1.42	— 0.56	+ 24 22 4.8	25.7	+ 0.1
79 " . .	6	20 4.5	38 4.5	45.28	1.65	+ 0.42	+ 27 37 38.0	21.9	+ 1.2
	6	22 48.2	40 48.2	45.28	1.18	— 1.20	+ 20 27 33.8	30.5	— 1.0
	6.7	23 4.8	41 4.8	45.28	1.18	— 1.19	+ 20 31 55.2	30.4	— 0.9
	6	27 3.7	45 3.7	45.29	1.24	— 1.09	+ 21 26 2.7	29.2	— 0.7
b) ψ " . .		28 6.8	46 6.8	45.29	1.40	— 0.68	+ 23 55 43.8	26.2	0.0
	6.7	30 42.7	48 42.7	45.30	1.52	— 0.20	+ 25 42 22.8	24.2	+ 0.6
	6	32 15.3	50 15.3	45.30	1.54	— 0.14	+ 25 55 31.8	23.8	+ 0.7
	6.7	35 16.7	53 16.7	45.31	1.56	+ 0.02	+ 26 27 31.6	23.3	+ 0.8
	7	36 51.1	54 51.1	45.31	1.63	+ 0.32	+ 27 20 16.7	22.2	+ 1.1
α Andromedæ	2.3	38 34.5	23 56 34.5	45.31	1.67	+ 0.51	+ 27 53 0.4	21.7	+ 1.3
	6.7	42 13.6	0 0 13.6	45.32	1.29	— 0.98	+ 22 15 26.4	28.3	— 0.5
γ Pegasi . .		43 29.3	1 29.3	45.32	0.78	— 1.65	+ 13 58 26.8	39.4	— 2.0
	8	46 49.4	4 49.4	45.33	2.24	+ 1.32	+ 35 24 44.0	13.5	+ 3.2
σ Andromedæ	5	48 24.8	6 24.8	45.33	2.26	+ 1.32	+ 35 34 10.6	13.3	+ 3.2
	7	51 8.8	9 8.8	45.33	0.54	— 2.13	+ 9 46 15.4	45.8	— 1.8
	6.7	54 40.8	12 40.8	45.33	1.83	+ 1.20	+ 30 9 40.0	19.1	+ 1.9
	7	57 39.5	15 39.5	45.34	0.83	— 1.58	+ 14 49 9.4	38.0	— 1.9
c) Moon bright L.	2.6	0 58 46.5	16 46.5	45.34	— 0.28	— 0.66	+ 4 57 27.2	0 54.1	— 1.4
Moon dark L.	6	1 1 4.9	19 4.9						
14 Mayer . .	7.8	5 45.3	23 45.3	45.36	+ 0.09	+ 0.97	— 1 41 40.5	1 8.6	— 0.7
15 " . .		8 20.0	26 20.0	45.36	+ 0.09	+ 0.97	— 1 41 33.0	1 8.6	— 0.7
	9	15 9.1	33 9.1	45.36	— 1.30	— 0.95	+ 22 23 37.0	0 28.1	— 0.4
	5	17 16.2	35 16.2	45.37	1.34	— 0.84	+ 23 4 34.4	27.3	— 0.2
Double, 1st		19 39.5	37 39.5	45.37	1.57	+ 0.03	+ 26 31 2.6	23.2	+ 0.9
μ Andromedæ		26 9.1	44 9.1	45.38	2.40	+ 1.27	+ 37 18 19.6	11.6	+ 3.6
	7	32 9.9	50 9.9	45.39	2.66	+ 1.32	+ 40 9 34.6	8.6	+ 4.1
	8.9	33 51.4	51 51.4	45.39	2.54	+ 1.28	+ 38 48 38.0	10.0	+ 3.9
6 " . .		37 0.8	55 0.8	45.40	2.91	+ 1.49	+ 42 45 58.6	6.0	+ 4.7
β " . .		39 1.6	0 57 1.6	45.40	2.16	+ 1.37	+ 34 27 12.6	14.5	+ 3.0
	7.8	45 5.2	1 3 5.2	45.41	3.37	+ 2.71	+ 46 54 49.2	1.9	+ 5.4
	7.8	46 50.7	4 50.7	45.41	3.30	+ 2.48	+ 46 15 11.4	2.6	+ 5.3
	6	50 32.8	8 32.8	45.41	1.64	+ 0.41	+ 27 35 23.6	22.0	+ 1.2
	7	52 45.1	10 45.1	45.42	2.05	+ 1.40	+ 33 5 16.4	16.0	+ 2.7
	7.8	55 13.7	13 13.7	45.43	2.08	+ 1.40	+ 33 26 14.0	15.6	+ 2.8
	7.8	56 12.3	14 12.3	45.43	2.07	+ 1.40	+ 33 14 1.0	15.8	+ 2.7
A " . .	6	1 58 33.4	16 33.4	45.43	2.24	+ 2.33	+ 45 51 51.6	3.0	+ 5.3
	6.7	2 3 11.9	21 11.9	45.44	2.29	+ 1.30	+ 36 6 17.0	12.8	+ 3.3
χ Andromedæ	6	7 48.3	25 48.3	45.45	2.96	+ 1.55	+ 43 15 32.8	5.5	+ 4.7
d)	6	9 7.4	27 7.4	45.45	2.85	+ 1.44	+ 42 10 35.8	6.6	+ 4.5
	6.7	12 52.5	30 52.5	45.45	1.90	+ 1.31	+ 31 4 51.5	18.1	+ 2.2
	6.7	2 17 17.5	1 35 17.5	+ 0 45.46	— 2.36	+ 1.28	+ 36 51 4.2	— 0 12.0	+ 3.5

1784 SEPTEMBER 30 Zero corr. = + 1′ 37″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	7	0 17 52.3	23 35 52.3	+ 0 49.49	— 1.45	— 0.56	+ 24 22 4.4	— 0 26.4	+ 0.1
e) 79 Pegasi . .		20 0.6	38 0.6	49.49	1.67	+ 0.42	+ 27 37 44.6	21.9	+ 1.2
	6	22 43.4	40 43.4	49.49	1.19	— 1.20	+ 20 27 33.3	31.3	— 1.0
	6.7	22 59.4	40 59.4	49.49	1.20	— 1.19	+ 20 31 54.0	31.3	— 0.9
		26 59.5	44 59.5	49.50	1.26	— 1.09	+ 21 26 4.0	30.1	— 0.7
f)	6.7	30 39.0	48 39.0	49.51	1.54	— 0.20	+ 25 42 19.8	24.8	+ 0.6
	6.7	35 12.3	53 12.3	49.52	1.59	+ 0.01	+ 26 27 29.6	23.9	+ 0.8
g) α Androm. .		38 30.8	23 56 30.8	49.53	1.55	+ 0.52	+ 27 53 0.4	21.7	+ 1.3
	7	42 9.1	0 0 9.1	49.53	1.31	— 0.98	+ 22 15 26.4	29.0	— 0.4
h) γ Pegasi . .		43 24.7	1 24.7	49.53	0.80	— 1.66	+ 13 58 23.2	40.5	— 2.0
σ Androm. .		0 48 21.0	0 6 21.0	+ 0 49.54	— 2.28	+ 1.32	+ 35 34 7.6	— 0 13.7	+ 3.2

a T. III assumed as 15s.; not 5s.
b Div. assumed as 26 9 5; not 26 9 6.
c ζ assumed as 43° 53′ 38″; not 43° 53′ 28″.
d T. III assumed as 9m. 38s.5; not 9m. 28s.5.
e ζ assumed as 21° 13′; not 21° 14′: and Div. assumed as 22 10 3; not 22 10 8.
f T. II assumed as 39s.; not 34s.
g ζ assumed as 20°; not 22°.
h T. II assumed as 43m.; not 42m.

1784 SEPTEMBER 30—Continued Zero corr. = + 1′ 37″. 0.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	0 51 4.8	0 9 4.8	+ 0 49.55	— 0.55	— 2.11	+ 9 45 1.4	— 0 47.1	— 1.8
	7	57 35.3	15 35.3	49.56	— 0.85	— 1.58	+ 14 49 5.0	0 39.1	— 1.9
Piscium .	7	0 59 48.5	17 48.5	49.56	+ 0.22	+ 1.57	— 4 1 56.6	1 16.5	— 0.6
	7.8	1 1 50.9	19 50.9	49.56	0.17	+ 1.33	— 2 59 14.9	13.5	— 0.7
	6.7	5 40.8	23 40.8	49.57	0.09	+ 0.97	— 1 41 38.0	10.4	— 0.7
	7	8 15.5	26 15.5	49.57	0.09	+ 0.97	— 1 41 38.0	10.4	— 0.7
16 Mayer . .	6	10 54.9	28 54.9	49.58	+ 0.31	+ 1.80	— 5 32 11.4	1 20.9	— 0.5
ζ Androm. .	4	17 12.2	35 12.2	49.59	— 1.36	— 0.84	+ 23 4 35.4	0 28.1	— 0.2
	7	22 55.2	40 55.2	49.59	2.35	+ 1.30	+ 36 13 35.1	13.0	+ 3.3
μ ‘‘ . .		26 4.8	44 4.8	49.60	2.44	+ 1.27	+ 37 18 22.6	11.9	+ 3.6
	7	32 5.6	50 5.6	49.61	2.69	+ 1.32	+ 40 9 37.2	8.9	+ 4.1
	7	35 57.3	53 57.3	49.61	3.60	+ 3.10	+ 48 22 23.0	0.5	+ 5.5
φ ‘‘ . .		38 18.8	56 18.8	49.62	3.32	+ 2.42	+ 46 3 46.6	2.8	+ 5.3
	6	41 23.9	0 59 23.9	49.62	3.11	+ 1.72	+ 44 9 44.0	4.9	+ 4.9
	7	45 0.7	1 3 0.7	49.62	3.42	+ 2.72	+ 46 54 42.4	2.0	+ 5.4
	7.8	46 47.0	4 47.0	49.63	3.34	+ 2.48	+ 46 15 13.4	2.6	+ 5.3
	6	50 29.0	8 29.0	49.63	1.67	+ 0.41	+ 27 35 24.0	22.6	+ 1.2
	7	52 41.1	10 41.1	49.64	2.08	+ 1.40	+ 33 5 15.4	16.4	+ 2.7
	7.8	55 9.5	13 9.5	49.64	2.11	+ 1.40	+ 33 26 17.3	16.0	+ 2.7
	7.8	56 8.0	14 8.0	49.65	2.11	+ 1.40	+ 33 14 2.1	16.3	+ 2.7
A ‘‘ . .	6	1 58 29.4	16 29.4	49.65	2.30	+ 2.33	+ 45 51 52.0	3.0	+ 5.3
		2 3 7.3	21 7.3	49.65	2.33	+ 1.30	+ 36 6 15.4	13.2	+ 3.3
υ ‘‘ . .		5 26.8	23 26.8	49.65	2.71	+ 1.32	+ 40 17 55.6	8.7	+ 4.1
χ ‘‘ . .	6	7 44.3	25 44.3	49.65	3.01	+ 1.55	+ 43 15 31.4	5.7	+ 4.7
	6	9 59.2	27 59.2	49.66	2.83	+ 1.39	+ 41 30 6.2	7.5	+ 4.4
	7.6	12 48.6	30 48.6	49.67	1.93	+ 1.31	+ 31 4 52.6	18.7	+ 2.2
	7	17 13.0	35 13.0	49.68	2.40	+ 1.28	+ 36 51 5.2	12.4	+ 3.5
	7.8	20 35.5	38 35.5	49.69	1.13	— 1.27	+ 19 25 38.9	32.9	— 1.2
	8	22 12.0	40 12.0	49.69	— 1.68	+ 0.47	+ 27 44 0.0	0 22.5	+ 1.2
a)	7	28 14.0	46 14.0	49.69	+ 0.17	+ 1.36	— 3 7 4.7	1 14.4	— 0.7
α Piscium .		32 8.0	50 8.0	49.70	— 0.10	— 0.05	+ 1 42 46.9	1 2.7	— 1.0
κ Arietis . .		35 47.5	53 47.5	49.70	1.26	— 1.07	+ 21 35 58.4	0 30.0	— 0.6
β Trianguli .		37 59.5	55 59.5	49.71	2.15	+ 1.39	+ 33 56 20.2	15.5	+ 2.9
16 Arietis . .		39 57.7	1 57 57.7	49.71	1.07	— 1.35	+ 18 27 45.2	34.1	— 1.4
Double Star	8	46 11.5	2 4 11.5	49.72	1.67	+ 0.46	+ 27 43 24.0	22.5	+ 1.2
α Trianguli .	7	47 43.8	5 43.8	49.72	1.67	+ 0.42	+ 27 37 21.0	22.7	+ 1.2
Moon . .		52 22.1	10 22.1	49.73	1.04	— 1.40	+ 17 55 44.8	34.9	— 1.5
	8	55 50.5	13 50.5	49.73	1.49	— 0.37	+ 25 2 51.3	25.8	+ 0.4
	6.7	2 58 14.1	16 14.1	49.74	1.33	— 0.94	+ 22 28 57.0	28.9	— 0.4
ν Ceti . .		3 5 48.5	23 48.5	49.75	0.26	— 0.57	+ 4 38 16.8	56.5	— 1.4
34 Arietis . .		9 22.0	27 22.0	49.75	1.57	— 0.08	+ 26 6 31.0	24.4	+ 0.7
36 ‘‘ . .		12 4.7	30 4.7	49.76	1.61	+ 0.11	+ 26 45 44.8	23.6	+ 0.9
	4	16 20.6	34 20.6	49.76	1.72	+ 0.71	+ 28 19 24.5	21.8	+ 1.4
b)	7	22 28.6	40 28.6	49.77	0.89	— 1.52	+ 15 34 53.0	38.2	— 1.8
46 Arietis . .	5	25 32.8	43 32.8	49.77	0.98	— 1.42	+ 17 8 26.2	36.0	— 1.7
ε ‘‘ . .		28 10.3	46 10.3	49.78	1.19	— 1.20	+ 20 27 12.7	31.5	— 1.0
α Ceti . .		32 15.4	50 15.4	49.78	0.18	— 0.31	+ 3 13 45.4	59.3	— 1.2
54 Arietis . .		37 24.3	55 24.3	49.79	1.03	— 1.39	+ 17 56 36.2	34.9	— 1.5
δ ‘‘ . .		40 34.5	2 58 34.5	49.80	— 1.10	— 1.32	+ 18 53 10.9	0 33.7	— 1.3
α Eridani .		44 1.2	3 2 1.2	49.80	+ 1.83	+ 4.79	— 29 47 5.6	4 41.0	— 5.3
c) α Persei . .		50 14.7	8 14.7	49.81	— 3.68	+ 3.25	+ 49 2 59.4	0 0.2	+ 5.6
d)		52 50.8	10 50.8	49.82	1.43	— 0.65	+ 23 55 55.4	27.1	0.0
ξ Tauri . .		56 44.7	14 44.7	49.83	0.50	— 1.64	+ 8 57 38.6	48.5	— 1.8
		59 35.2	17 35.2	49.84	1.61	+ 0.13			
Double Star	8	3 59 36.7	17 36.7	49.84	1.61	+ 0.13	+ 26 48 17.0	23.6	+ 0.9
e)	7	4 3 8.5	21 8.5	49.85	0.98	— 1.42	+ 17 6 4.1	36.1	— 1.7
Tauri . .	7	5 34.6	23 34.6	49.85	1.32	— 0.94	+ 22 28 13.7	28.9	— 0.4
13 ‘‘ . .	6	11 9.3	29 9.3	49.85	1.10	— 1.31	+ 18 58 58.3	33.6	— 1.3
	6.7	13 36.2	30 36.2	49.85	1.10	— 1.31	+ 18 57 28.6	33.6	— 1.3
η Pleiadum .		15 56.6	33 56.6	49.85	1.39	— 0.78	+ 23 24 32.8	27.8	— 0.1
f)		17 36.9	35 36.9	49.86	1.39	— 0.78	+ 23 21 53.4	28.1	— 0.1
u		21 45.0	39 45.0	49.87	0.33	— 0.91	+ 5 52 6.6	54.3	— 1.5
		4 25 23.8	3 43 23.8	+ 0 49.88	— 1.29	— 1.04	+ 21 49 43.6	— 0 29.8	— 0.6

a Div. assumed as 55; not 56.
b T. III assumed as 22m.; not 12m.
c ξ assumed as 89° 48′ 6″; not 89° 48′ 36″.
d ξ assumed as 24° 55′; not 24° 50′.
e T. III assumed as 33s.5; not 38s.5.
f ξ assumed as 25° 29′; not 25° 26′.

1784 SEPTEMBER 30—Continued Zero corr. = + 1′ 37″. 0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	4 29 50.1	3 47 50.1	+ 0 49.88	— 1.14	— 1.27	+ 19 34 2.0	— 0 32.7	— 1.2
a) A Tauri . .	5	33 13.2	51 13.2	49.88	1.26	— 1.08	+ 21 27 46.0	30.3	— 0.7
ω " . .		37 52.9	3 55 52.9	49.88	1.10	— 1.31	+ 19 0 44.0	33.5	— 1.3
γ " . .		48 48.0	4 6 48.0	49.90	0.86	— 1.57	+ 15 4 50.0	39.1	— 1.9
δ " . .	4	4 51 46.0	4 9 46.2	— 0 49.91	— 0.98	— 1.43	+ 17 0 34.8	— 0 36.2	— 1.7

1784 OCTOBER 1 Zero corr. = + 1′ 39″. 3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Sun I limb		13 12 45.1	12 30 45.1				— 3 48 33.6	— 1 14.5	— 0.6
Sun II limb		13 14 53.8	12 32 53.8						
ζ Ophiuchi .		17 6 25.6	16 24 25.6	+ 0 51.22	+ 0.57	+ 1.79	— 10 7 4.6	1 36.3	— 0.4
	7.8	19 43 34.8	19 1 34.8	51.46	— 0.46	— 1.42	+ 8 15 1.2	0 49.7	— 1.7
	6	47 47.2	5 47.2	51.47	0.81	— 1.63	+ 14 9 42.5	40.2	— 2.0
	8	49 42.4	7 42.4	51.47	0.80	— 1.64	+ 14 4 48.9	40.3	— 2.0
	7	51 34.4	9 34.4	51.48	1.61	+ 0.14	+ 26 51 32.2	23.5	+ 1.0
	7.6	55 39.7	13 39.7	51.49	2.07	+ 1.40	+ 33 5 45.6	16.4	+ 2.7
	6.7	56 36.6	14 36.6	51.49	2.04	+ 1.40	+ 32 47 4.3	16.8	+ 2.7
	6.7	19 59 34.2	17 34.2	51.49	2.30	+ 1.31	+ 35 52 29.8	13.4	+ 3.3
β Cygni . .		20 3 13.7	21 13.7	51.49	1.66	+ 0.38	+ 27 29 55.8	22.7	+ 1.1
	6	3 15.7	21 15.7	51.49	— 1.66	+ 0.38	+ 27 30 19.9	0 22.7	+ 1.2
ι Antinoi .	6	6 ½	24 ½				— 1 45 25.0	1 10.5	— 0.7
	6.7	10 46.4	28 46.4	51.50	+ 0.06	+ 0.79	— 1 6 45.4	1 9.1	— 0.7
b) γ Aquilæ .		17 13.6	35 13.6	51.51	— 0.56	— 2.35	+ 10 5 18.8	0 46.7	— 1.8
α " . .		21 28.5	39 28.5	51.52	0.46	— 1.44	+ 8 18 3.6	49.7	— 1.7
	7	30 12.7	48 12.7	51.53	0.60	— 2.75	+ 10 43 12.2	45.8	— 1.9
	8	32 22.5	50 22.5	51.54	0.79	— 1.66	+ 13 55 36.6	40.7	— 2.0
	7	34 0.4	52 0.4	51.54	0.80	— 1.65	+ 13 58 43.9	40.6	— 2.0
15 Sagittæ .	6.7	35 37.5	53 37.5	51.54	0.94	— 1.47	+ 16 29 1.2	37.0	— 1.8
Vulpeculæ	5.6	38 50.2	19 56 50.2	51.54	1.35	— 0.86	+ 22 59 15.2	28.2	— 0.2
	7	42 46.8	20 0 46.8	51.55	1.18	— 1.19	+ 20 29 19.0	31.4	— 1.0
	7	45 37.5	3 37.5	51.55	1.39	— 0.75	+ 23 34 48.0	27.5	— 0.1
c) 22 " . .	6	47 24.3	5 24.3	51.56	1.34	— 0.88	+ 22 50 39.6	28.3	— 0.2
	6.7	47	5	51.56	1.22	— 1.15	+ 20 55 59.0	30.8	— 0.8
	7	51 0.8	9 0.8	51.56	1.57	— 0.02	+ 26 18 39.0	24.2	+ 0.7
	8	53 56.7	11 56.7	51.56	1.83	+ 1.18	+ 29 53 41.4	20.0	+ 1.9
h Cygni .	6	56 26.2	14 26.2	51.57	1.94	+ 1.36	+ 31 29 4.7	18.2	+ 2.3
	7.8	20 59 54.2	17 54.2	51.57	2.11	+ 1.40	+ 33 36 32.4	15.9	+ 2.8
	7.8	21 2 20.9	20 20.9	51.58	0.86	— 1.57	+ 15 4 46.4	39.0	— 1.9
ε Delphini .		4 8.4	22 8.4	51.58	0.60	— 2.67	+ 10 34 10.4	45.9	— 1.9
ι " . .		8 44.2	26 44.2	51.59	0.60	— 2.70	+ 10 37 27.6	45.9	— 1.9
κ " . .		9 51.8	27 51.8	51.59	0.52	— 1.80	+ 9 19 38.2	48.0	— 1.8
	7	13 18.0	31 18.0	51.60	3.17	+ 1.93	+ 44 53 20.7	4.1	+ 5.1
α Cygni . .		15 16.2	33 16.2	51.60	3.12	+ 1.79	+ 44 29 37.8	4.4	+ 5.0
d)	6	26	44				+ 3 42 35.0	55.1	— 1.3
e) 1 Equulei .	6	29 29.0	47 29.0	51.62	0.19	— 0.36	+ 3 28 11.4	0 58.8	— 1.2
	7	33 1.6	51 1.6	51.62	0.14	— 0.20	+ 2 30 18.7	1 0.9	— 1.1
	7	34 59.3	52 59.3	51.63	— 0.11	— 0.11	+ 2 5 19.8	1.7	— 1.0
	7.8	37 25.2	55 25.2	51.63	+ 0.09	+ 0.95	— 1 37 36.4	10.5	— 0.7
	7.8	40 14.7	20 58 14.7	51.64	— 0.11	— 0.11	+ 2 4 11.4	1.9	— 1.0
	8	43 1.8	21 1 1.8	51.64	— 0.08	— 0.06	+ 1 45 42.1	2.6	— 1.0
	7.8	44 43.0	2 43.0	51.64	+ 0.03	+ 0.65	— 0 47 36.0	8.5	— 0.7
	7	46 39.2	4 39.2	51.65	+ 0.14	+ 1.20	— 2 29 57.7	1 12.5	— 0.7
	8	49 13.7	7 13.7	51.65	— 0.45	— 1.38	+ 8 3 21.9	0 50.3	— 1.7
	7	52 3.4	10 3.4	51.65	0.52	— 1.86	+ 9 25 5.0	47.9	— 1.8
	6.7	55 5.3	13 5.3	51.66	0.52	— 1.76	+ 9 14 47.7	48.2	— 1.8
35 Vulpeculæ	6	21 59 22.4	17 22.4	51.66	1.60	+ 0.08	+ 26 39 44.3	23.8	+ 0.9
f Pegasi . .	6	22 1 24.1	19 24.1	51.67	1.33	— 0.90	+ 22 41 14.7	28.7	— 0.3
		3 17.3	21 17.3	51.67	— 1.34	— 0.87	+ 22 53 13.2	0 28.5	— 0.2
γ Capricorni		9 15.6	27 15.6	51.68	+ 1.01	+ 1.59	— 17 36 50.5	2 11.2	— 0.6
	6	22 12 20.3	21 30 20.3	+ 0 51.68	— 0.02	+ 0.27	+ 0 18 25.6	1 5.8	— 0.8
ε Pegasi . .							+ 8 53 7.0	— 0 48.9	— 1.8

a ζ assumed as 27° 23′ 18″; not 27° 23′ 8″.
b T. I assumed as 49s.5; not 54s.5.
c ζ assumed as 26°; not 25°.
d ζ assumed as 45° 8′ 30″; not 45° 7′ 50″.
e Div. assumed as 48, not 46.

1784 OCTOBER 1—Continued Zero corr. = + 1′ 39″.3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	″	″
a)	7	22 17 34.7	21 35 34.7	+ 0 51.69	— 0.71	— 1.84	+ 12 43 14.4	— 0 42.7	— 2.0
	7.8	20 16.0	38 16.0	51.69	0.84	— 1.59	+ 14 45 11.3	39.5	— 1.9
	6.7	24 42.2	42 42.2	51.70	1.07	— 1.33	+ 18 38 46.4	34.0	— 1.4
	7	22 25 23.1	21 43 23.1	+ 0 51.70	— 1.07	— 1.33	+ 18 41 41.6	— 0 34.0	— 1.4

1784 OCTOBER 2 Zero corr. = + 1′ 38″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
b) 36 Pegasi		22 59 32.8	22 17 32.8	+ 0 54.00	— 0.45	— 1.37	+ 8 1 26.6	— 0 50.5	— 1.7
39 "		23 3 21.7	21 21.7	54.01	— 1.09	— 1.30	+ 19 6 41.0	0 33.5	— 1.3
κ Aquarii		7 42.0	25 42.0	54.01	+ 0.28	+ 1.78	— 5 20 9.8	1 20.8	— 0.5
	6	12 12.3	30 12.3	54.01	0.77	+ 1.57	— 13 40 27.2	51.8	— 0.4
		15 6.6	33 6.6	54.02	0.60	+ 1.73	— 10 46 11.0	39.4	— 0.3
2 τ "	5	19 16.3	37 16.3	54.03	0.83	+ 1.60	— 14 43 0.9	57.0	— 0.5
c) λ "		22 27.7	40 27.7	54.03	0.49	+ 1.86	— 8 43 17.6	1 31.7	— 0.4
d) Fomalhaut		26 44.2	44 44.2	54.04	+ 0.89	+ 5.06	— 30 41 55.5	5 5.4	— 6.1
e) β Piscium	4.5	34 3.3	52 3.3	54.06	— 0.15	— 0.23	+ 2 39 28.6	1 0.9	— 1.1
	6.7	41 25.9	22 59 25.9	54.07	0.20	— 0.40	+ 3 49 50.4	0 58.4	— 1.3
	7.8	44 12.2	23 2 12.2	54.07	0.20	— 0.40	+ 3 49 12.2	0 58.4	— 1.3
	5	47 8.5	5 8.5	54.08	0.11	— 0.12	+ 2 6 6.1	1 2.0	— 1.0
	9.10	48 57.5	6 57.5	54.08	0.11	— 0.12	+ 2 4 17.0	1 2.0	— 1.0
	6	50 30.9	8 30.9	54.08	0.23	— 0.49	+ 4 12 4.8	0 57.7	— 1.3
	8.9	53 1.8	11 1.3	54.08	— 0.09	— 0.03	+ 1 38 2.4	1 3.1	— 1.0
κ "	5	57 0.8	15 0.8	54.09	0.00	+ 0.33	+ 0 4 24.8	6.6	— 0.8
	6	23 57 20.2	15 20.2	54.09	0.00	+ 0.37	— 0 3 49.0	7.0	— 0.8
	8	0 0 47.1	18 47.1	54.10	+ 0.02	+ 0.46	— 0 18 5.6	7.5	— 0.8
13 "	7	2	20				— 2 16 33.0	12.3	— 0.7
14 "	6	4 11.3	22 11.3	54.10	+ 0.13	+ 1.19	— 2 26 18.1	12.7	— 0.7
15 "	7	5	23				+ 0 7 13.0	6.6	— 0.8
	8	7 56.5	25 56.5	54.10	— 0.11	— 0.13	+ 2 10 24.0	1 1.9	— 1.0
f)	8	10 26.6	28 26.6	54.11	0.20	— 0.38	+ 3 36 20.4	0 58.8	— 1.3
g)	7	15 53.1	33 53.1	54.11	0.68	— 2.86	+ 11 57 0.0	44.0	— 2.0
	6.7	17 46.9	35 46.9	54.12	1.44	— 0.56	+ 24 22 6.4	26.7	+ 0.1
	7	20 7.3	38 7.3	54.12	1.58	+ 0.02	+ 26 28 3.4	24.1	+ 0.8
φ Pegasi	6	22 43.5	40 43.5	54.13	1.03	— 1.40	+ 17 54 42.5	35.2	— 1.5
	7	25 0.1	43 0.1	54.13	1.01	— 1.41	+ 17 32 8.6	35.6	— 1.6
	6.7	29 57.7	47 57.7	54.14	0.56	— 2.34	+ 10 3 51.8	47.0	— 1.8
	8	32 42.0	50 42.0	54.14	0.85	— 1.57	+ 15 2 47.1	39.2	— 1.9
	6	35 2.3	53 2.3	54.15	1.51	— 0.26	+ 25 26 1.0	25.4	+ 0.5
	7	36 42.1	54 42 1	54.15	1.65	+ 0.33	+ 27 20 16.7	23.1	+ 1.1
α Andromedæ		38 26.0	23 56 26.0	54.15	1.69	+ 0.51	+ 27 53 3.4	22.5	+ 1.3
γ Pegasi		0 43 20.3	0 1 20.3	54.15	0.79	— 1.66	+ 13 58 27.2	40.8	— 2.0
η Andromedæ	4	1 26 54.3	44 54.3	54.22	1.29	— 0.98	+ 22 14 7.8	29.4	— 0.5
	7.8	32 23.7	50 23.7	54.23	1.49	— 0.34	+ 25 7 8.2	25.8	+ 0.4
	7	33	51				+ 28 29 17.0	21.7	+ 1.4
78 Piscium	6.7	37 18.0	0 55 18.0	54.24	1.91	+ 1.29	+ 30 50 20.4	19.1	+ 2.2
β Pegasi							+ 34 27 15.0	15.1	+ 3.0
85 φ Piscium	6.5	43 14.8	1 1 14.8	54.25	1.38	— 0.78	+ 23 25 23.0	27.9	— 0.1
	7.8	45 59.5	3 59.5	54.25	1.31	— 0.95	+ 22 25 55.8	29.1	— 0.4
υ "	6	48 49.0	6 49.0	54.26	1.55	— 0.08	+ 26 6 39.0	24.6	+ 0.7
A Androm.	6	1 58 25.2	16 25.2	54.27	3.28	+ 2.33	+ 45 51 46.6	3.1	+ 5.3
	7	2 1 39.7	19 39.7	54.27	2.19	+ 1.35	+ 34 42 34.6	14.8	+ 3.0
	7	2 44.6	20 44.6	54.28	2.17	+ 1.37	+ 34 28 34.2	15.1	+ 3.0
h)	7	3	21				+ 36 6 18.0	13.3	+ 3.3
	6.5	5 22.5	23 22.5	54.28	2.70	+ 1.32	+ 40 17 54.6	8.8	+ 4.1
	6	10 48.9	28 48.9	54.29	2.15	+ 1.38	+ 34 7 53.0	15.4	+ 2.9
2 Arietis	6	12	30				+ 19 12 3.0	33.4	— 1.3
	6	14 22.1	32 22.1	54.30	1.09	— 1.31	+ 18 59 13.4	33.7	— 1.3
i) 3 "	7	16 5.8	34 5.8	51.30	0.93	— 1.48	+ 16 18 54.5	37.5	— 1.8
j) 4 "	6	17 41.6	35 41.6	54.30	0.90	— 1.50	+ 15 51 51.1	38.1	— 1.8
	7	2 21 14.9	1 39 14.9	+ 0 54.31	— 0.98	— 1.42	+ 17 12 43.4	— 0 36.1	— 1.7

a Div. assumed as 38; not 39.
b Min. assumed as 59; not 58.
c Micr. corr. assumed as + 5; not — 5.
d T. II assumed as 44s.; not 54s.
e ζ assumed as 46° 11′ 34″; not 46° 11″ 14′.
f ζ assumed as 45° 15′ 44″; not 45° 15′ 24″: and Div. as 48 4 3; not 48 4 1, to agree with observation of December 28.
g T. I rejected.
h ζ assumed as 12° 44′ 47″; not 12° 45′ 7″.
i Div. assumed as 34 11; not 34 13.
j ζ assumed as 32° 59′ 15″; not 32° 59′ 45″.

1784 OCTOBER 2—Continued Zero corr. = + 1′ 38″.6.

Name	Mag.	T	App. sid. time	Clock corr.	$\kappa \tan \delta$	q.	$\zeta - \phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
γ Arietis . .		2 22 54.7	1 40 54.7	+ 0 54.31	− 1.04	− 1.37	+ 18 13 10.2	− 0 34.8	− 1.5
	7.8	26 6.2	44 6.2	54.31	2.72	+ 1.34	+ 40 36 45.0	8.5	+ 4.2
	6	28 50.0	46 50.0	54.32	1.16	− 1.23	+ 19 59 27.6	32.3	− 1.1
a) 11 " . .	6	32 37.8	50 37.8	54.32	1.47	− 0.41	+ 24 52 27.0	26.1	+ 0.4
κ " . .	6	35 42.9	53 42.9	54.33	1.26	− 1.07	+ 21 35 53.4	30.2	− 0.6
		38 58.2	56 58.2	54.33	1.12	− 1.29	+ 19 18 17.0	33.3	− 1.2
16 " . .	6	39 53.7	1 57 53.7	54.33	1.05	− 1.35	+ 18 27 43.8	34.4	− 1.4
	7	42 7.8	2 0 7.8	54.34	3.50	+ 2.95	+ 47 44 17.0	1.1	+ 5.5
	6.7	46 11.8	4 11.8	54.35	1.83	− 0.90	+ 22 44 48.2	28.8	− 0.3
	8	51 12.7	9 12.7	54.35	1.85	− 1.56	+ 15 9 26.4	39.3	− 1.9
	7.8	54 44.0	12 44.0	54.36	1.42	− 0.61	+ 24 9 40.6	27.0	0.0
13 Trianguli .	7.6	2 57 21.7	15 21.7	54.36	1.76	+ 0.95	+ 28 56 5.8	21.3	+ 1.6
b) 14 " . .	6	3 0 9.7	18 9.7	54.36	2.23	+ 1.33	+ 35 9 32.8	14.3	+ 3.1
	6	3 34.7	21 34.7	54.37	2.33	+ 1.30	+ 36 20 15.4	13.0	+ 3.4
	7	6 11.0	24 11.0	54.37	2.37	+ 1.29	+ 36 45 43.0	12.6	+ 3.5
5 q Persei . .	7	9 52.7	27 52.7	54.38	2.59	+ 1.28	+ 39 14 54.3	10.0	+ 3.9
37 Arietis . .	7	13 29.5	31 29.5	54.38	0.96	− 1.44	+ 16 49 47.8	36.7	− 1.7
	8	16 18.9	34 18.9	54.39	1.33	− 0.90	+ 22 42 27.2	28.9	− 0.3
	6	22 23.3	40 23.3	54.40	0.89	− 1.52	+ 15 34 50.5	38.5	− 1.8
ρ " . .	6	25 28.3	43 28.3	54.40	0.97	− 1.43	+ 17 8 26.2	36.3	− 1.7
ε " . .	6	28 5.9	46 5.9	54.41	1.18	− 1.20	+ 20 27 12.2	31.8	− 1.0
49 " . .	6.7	30 24.1	48 24.1	54.41	1.52	− 0.23	+ 25 34 52.2	25.3	+ 0.6
	7	33 53.3	51 53.3	54.42	0.85	− 1.57	+ 14 59 50.4	39.4	− 1.9
	8.9	38 30.9	56 30.9	54.42	− 1.06	− 1.34	+ 18 32 1.5	34.4	− 1.4
δ Arietis . .		41	2 59				+ 18 53 10.0	0 34.0	− 1.3
12 Eridani .		43 56.7	3 1 56.7	54.43	+ 1.82	+ 4.79	− 29 47 4.2	4 43.1	− 5.3
α Persei . .		50 10.1	8 10.1	54.44	− 3.66	+ 3.26	+ 49 3 2.0	0 0.2	+ 5.6
ξ Tauri . .		56 40.4	14 40.4	54.44	0.50	− 1.64	+ 8 57 36.0	49.0	− 1.8
	6.7	3 59 49.7	17 49.7	54.45	0.59	− 2.67	+ 10 34 31.0	46.3	− 1.9
	6	4 2 52.3	20 52.3	54.45	1.40	− 0.72	+ 23 42 46.4	27.5	0.0
79 " . .		5 29.5	23 29.5	54.46	1.31	− 0.94	+ 22 28 10.2	29.2	− 0.4
11 " . .	6	9 5.3	27 5.3	54.47	1.46	− 0.50	+ 24 36 9.2	26.5	+ 0.2
	7.8	12 2.4	30 2.4	54.47	1.44	− 0.55	+ 24 22 7.0	26.8	+ 0.1
m " . .	7.6	13 30.2	31 30.2	54.47	1.42	− 0.61	+ 24 8 0.8	27.0	0.0
η Pleiadum .		15 52.4	33 52.4	54.48	1.37	− 0.78	+ 23 24 31.8	28.0	− 0.1
c) f Atlas . .		17 33.8	35 33.8	54.48	1.37	− 0.78	+ 23 21 52.6	28.1	− 0.1
	7.8	20 29.7	38 29.7	54.48	1.45	− 0.52	+ 24 29 39.0	26.6	+ 0.2
ξ Persei . .	5	26 10.4	44 10.4	54.49	2.23	+ 1.33	+ 35 7 59.6	14.4	+ 3.1
Tauri . .	6.7	29 45.2	47 45.2	54.50	1.13	− 1.27	+ 19 33 59.4	33.0	− 1.2
A " . .		33 8.5	51 8.5	54.50	1.25	− 1.08	+ 21 27 51.0	30.5	− 0.7
	6	37 9.0	3 55 9.0	54.51	1.27	− 1.04	+ 21 46 56.0	30.1	− 0.6
Moon . .		40 5.7	4 8 5.7	54.53	1.55	− 0.09	+ 26 4 59.3	24.7	+ 0.7
δ¹ Tauri . .		41 41.4	9 41.4	54.53	0.97	− 1.43	+ 17 0 34.0	36.5	− 1.7
δ² " .		52 51.5	10 51.5	54.53	0.97	− 1.44	+ 16 55 1.5	36.6	− 1.7
2 v " . .		55 35.6	13 35.6	54.54	1.31	− 0.94	+ 22 28 48.4	29.2	− 0.4
	9	4 58 51.0	16 51.0	54.54	1.12	− 1.29	+ 19 20 27.8	33.3	− 1.3
	7	5 2 15.4	20 15.4	54.54	1.00	− 1.41	+ 17 31 58.4	35.8	− 1.6
Aldebaran		4 44.4	22 44.4	54.55	0.91	− 1.49	+ 16 2 53.8	37.9	− 1.8
τ Tauri . .		10 29.8	28 29.8	54.56	− 1.31	− 0.93	+ 22 30 43.3	0 29.1	− 0.3
μ Eridani .		15 50.0	33 50.0	54.57	+ 0.20	+ 1.49	− 3 39 47.8	1 16.5	− 0.6
3 Orionis .	5	20 52.8	38 52.8	54.57	− 0.28	− 0.73	+ 5 12 56.2	0 56.0	− 1.4
	6	24 18.2	42 18.2	54.58	0.41	− 1.24	+ 7 24 25.5	51.8	− 1.6
	7	25 39.3	43 39.3	54.58	0.42	− 1.28	+ 7 32 59.7	51.7	− 1.7
	8	31 20.2	49 20.2	54.59	0.77	− 1.70	+ 13 34 32.3	41.7	− 2.0
γ " . .	5.6	33 25.7	51 25.7	54.60	− 0.85	− 1.57	+ 15 4 32.8	0 39.4	− 1.9
β Eridani .	4	38 21.2	56 21.2	54.60	+ 0.29	+ 1.78	− 5 22 34.8	1 21.6	− 0.5
Capella .		41 56.6	4 59 56.6	54.61	− 3.26	+ 2.29	+ 45 43 44.8	0 3.2	+ 5.3
d) Rigel . .		45 16.4	5 3 16.4	54.61	+ 0.48	+ 1.87	− 8 27 45.2	1 31.5	− 0.5
	6.7	49 22.9	7 22.9	54.62	− 1.13	− 1.26	+ 19 33 55.4	0 33.0	− 1.2
	6	51 54.2	9 54.2	54.62	1.90	+ 1.30	+ 30 54 12.1	19.1	+ 2.2
β Tauri . .		53 49.9	11 49.9	54.62	1.72	+ 0.74	+ 28 23 17.5	22.0	+ 1.4
Double Star	6	5 57 10.5	15 10.5	54.63	− 1.48	− 0.40	+ 24 56 23.6	0 26.1	+ 0.4
δ Orionis .		6 2 6.6	5 20 6.6	+ 0 54.64	+ 0.02	+ 0.53	− 0 28 37.5	− 1 8.5	− 0.8

a Transit over T. I assumed to have been recorded as over T. III and as 32m. 12s.5; not 32m. 2s.5.

b T. III assumed as 0m.; not 9m.

c Transit over T. I assumed as recorded over T. II.

d ζ assumed as 57° 18′; not 57° 17′.

	Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
	1784 OCTOBER 2—Continued								Zero corr. — + 1′ 38″. 6.	
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	c Orionis . .	6	6 5 50.8	5 23 50.8	+ 0 54.64	+ 0.28	+ 1.74	− 4 59 35.7	− 1 20.4	− 0.5
	σ " . .	5.4	9 1.8	27 1.8	54.65	0.15	+ 1.27	− 2 44 25.2	14.0	− 0.7
a)	ζ " . .		10 58.8	28 58.8	54.65	+ 0.11	+ 1.09	− 2 4 23.0	1 12.4	− 0.7
		6.7	14 3.2	32 3.2	54.65	− 0.71	− 1.82	+ 12 46 8.6	0 43.0	− 2.0
		6	16 39.3	34 39.3	54.66	0.77	− 1.68	+ 13 47 34.8	41.4	− 2.0
		7	19 22.7	37 22.7	54.66	0.80	− 1.63	+ 14 12 51.8	40.6	− 2.0
	a " . .		24 39.4	42 39.4	54.67	0.41	− 1.23	+ 7 20 35.6	52.0	− 1.6
		8	28 33.5	46 33.5	54.68	1.34	− 0.88	+ 22 51 12.7	28.8	− 0.2
	H Geminorum	6	32 10.4	50 10.4	54.68	1.37	− 0.81	+ 23 14 27.6	28.2	− 0.2
		7	35 39.0	53 39.0	54.69	0.93	− 1.48	+ 16 21 27.0	37.6	− 1.8
		7	37 48.0	5 55 48.0	54.69	1.35	− 0.83	+ 23 6 50.8	28.4	− 0.2
		7	42 3.2	6 0 3.2	54.70	1.07	− 1.33	+ 18 42 20.8	34.3	− 1.3
		7	44 59.2	2 59.2	54.70	1.40	− 0.70	+ 23 46 42.6	27.5	0.0
	μ " . .		6 51 4.7	9 4.7	54.71	1.32	− 0.92	+ 22 35 23.7	29.1	− 0.3
	γ " . .		7 6 25.0	24 25.0	54.73	0.94	− 1.47	+ 16 33 5.8	37.3	− 1.7
	ε " . .		11 48.6	29 48.6	54.74	− 1.50	− 0.30	+ 25 18 28.4	0 25.7	+ 0.5
	Sirius . .		16 42.7	6 34 42.7	54.75	+ 0.93	+ 1.67	− 16 25 14.0	2 7.2	− 0.5
b)	a Geminorum		8 1 55.9	7 19 55.9	54.81	− 2.01	+ 1.39	+ 32 19 23.2	0 17.5	+ 2.6
	Procyon .		9 8.1	27 8.1	54.82	0.32	− 0.87	+ 5 45 14.2	55.0	− 1.5
	β Geminorum		8 13 13.7	7 31 13.7	+ 0 54.83	− 1.73	+ 0.79	+ 28 30 33.0	− 0 21.8	+ 1.5
	1784 OCTOBER 6								Zero corr. = + 1′ 41″.8.	
	Sun . .		13 30 45.3	12 50 45.3				− 5 44 30.0	− 1 20.4	− 0.5
			13 32 55.2	12 52 55.2				− 5 12 13.0	1 18.8	− 0.5
	a Ophiuchi .	2	18 5 56.8	17 25 56.8	− 0 57.24	− 0.72	− 1.86	+ 12 42 48.6	0 41.9	− 2.0
	β " . .	3	13 48.8	33 48.8	57.22	0.26	− 0.58	+ 4 39 28.7	55.8	− 1.4
	γ " . .	3	18 4.3	38 4.3	57.22	0.15	− 0.25	+ 2 47 28.0	59.5	− 1.2
	θ Herculis .	4	18 29 50.4	17 49 50.4	57.20	2.44	+ 1.27	+ 37 15 57.0	11.8	+ 3.5
	e Pegasi . .	6	21 53 11.5	21 13 11.5	56.86	0.33	− 0.91	+ 5 53 20.6	53.6	− 1.5
		8	56 47.5	16 47.5	56.85	0.51	− 1.73	+ 9 12 34.3	47.8	− 1.8
		6.7	21 58 48.0	18 48.0	56.85	0.41	− 1.20	+ 7 15 22.8	50.9	− 1.6
	Nebula .		22 0 34.6	20 34.6	56.85	0.63	− 2.98	+ 11 13 14.2	44.4	− 1.9
		6.7	1 46.0	21 46.0	56.84	0.63	− 2.96	+ 11 11 10.8	44.6	− 1.9
		6.7	5 40.7	25 40.7	56.84	1.00	− 1.42	+ 17 21 44.2	35.4	− 1.6
	5 Pegasi . .	6.5	8 41.7	28 41.7	56.84	1.06	− 1.36	+ 18 20 33.2	34.1	− 1.4
		7	11 2.1	31 2.1	56.83	0.54	− 2.01	+ 9 37 53.4	47.1	− 1.8
		6	13 2.5	33 2.5	56.82	0.56	− 2.18	+ 9 50 16.6	46.8	− 1.8
	ε Pegasi . .	2.3	14 36.9	34 36.9	56.82	0.50	− 1.62	+ 8 53 3.2	48.3	− 1.8
		7	17 23.1	37 23.1	56.82	0.72	− 1.84	+ 12 43 8.4	42.2	− 2.0
		7	20 4.1	40 4.1	56.81	0.84	− 1.59	+ 14 45 8.3	39.1	− 1.9
		6.7	22 27.7	42 27.7	56.81	1.09	− 1.32	+ 18 48 34.0	33.4	− 1.3
		6.7	24 30.3	44 30.3	56.81	1.08	− 1.33	+ 18 38 41.4	33.7	− 1.4
		7.8	25 11.2	45 11.2	56.80	1.08	− 1.33	+ 18 41 40.0	33.6	− 1.4
c)	17 " . .	6	27 27.6	47 27.6	56.80	0.62	− 1.88	+ 11 2 46.9	44.8	− 1.9
	18 " . .	6	30 21.5	50 21.5	56.80	− 0.32	− 0.85	+ 5 40 56.4	0 54.0	− 1.5
	o Aquarii .	6.5	33 7.0	53 7.0	56.79	+ 0.18	+ 1.38	− 3 11 34.6	1 13.9	− 0.7
	a " . .	3	35 40.5	55 40.5	56.79	+ 0.08	+ 0.86	− 1 21 54.2	1 9.1	− 0.7
		7.8	37 53.2	21 57 53.2	56.78	− 0.48	− 1.52	+ 8 36 52.0	0 48.7	− 1.8
		7.6	41 4.5	22 1 4.5	56.78	1.07	− 1.34	+ 18 33 18.0	33.8	− 1.4
		7	22 45 41.5	22 5 41.5	56.77	1.26	− 1.09	+ 21 26 42.5	29.9	− 0.7
	26 Piscium . .	7	0 25 6.7	23 45 6.7	56.60	− 0.33	− 0.90	+ 5 51 53.0	0 53.7	− 1.5
	27 " . .	5	28 36.0	48 36.0	56.60	+ 0.26	+ 1.70	− 4 45 9.7	1 18.1	− 0.5
	29 " . .	5	31 44.3	51 44.3	56.59	+ 0.24	+ 1.63	− 4 13 44.8	1 16.5	− 0.6
		7	36 32.9	23 56 32.9	56.58	− 1.65	+ 0.33	+ 27 20 15.7	0 22.8	+ 1.1
		7.6	41 55.6	0 1 55.6	56.58	1.66	+ 0.35	+ 27 23 44.2	22.7	+ 1.1
d)		7.6	43 53.2	3 53.2	56.58	2.00	+ 1.39	+ 31 59 23.4	17.5	+ 2.5
		6	50 31.3	10 31.3	56.56	1.97	+ 1.37	+ 31 41 47.5	17.8	+ 2.4
	28 Androm. .	6	0 59 47.3	19 47.3	56.55	1.74	+ 0.79	+ 28 32 37.2	21.4	+ 1.5
	π " . .	4.5	1 6 25.1	26 25.1	56.54	2.04	+ 1.39	+ 32 30 41.4	16.9	+ 2.6
	δ " . .	3	8 50.7	28 50.7	56.53	1.82	+ 1.13	+ 29 39 40.2	20.1	+ 1.8
		7	1 11 13.8	0 31 13.8	− 0 56.52	− 1.39	− 0.77	+ 23 25 44.2	− 0 27.5	− 0.1

a Div. assumed as 54 5 2; not 54 5 3.
b ζ assumed as 16° 31′ 44″; not 16° 31′ 54″.
c Micr. corr. assumed as + 5; not — 5.
d Min. ass'd as 43m. and 44m.; not 42m. and 43m.

1784 OCTOBER 6—Continued Zero corr. = + 1′ 41″.8.

	Name	Mag.	T	App. sid. time	Clock corr.	π tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	57 Piscium	6	1 16 19.3	0 36 19.3	− 0 56.52	− 0.81	− 1.62	+ 14 17 7.6	− 0 39.8	− 2.0
	64 "	6.7	18 42.6	38 42.6	56.52	0.90	− 1.51	+ 15 45 44.4	37.7	− 1.8
		6.7	22 41.3	42 41.3	56.51	2.34	+ 1.30	+ 36 13 37.4	13.0	+ 3.3
	μ Androm.	4.3	25 51.0	45 51.0	56.50	2.44	+ 1.27	+ 37 18 21.8	11.8	+ 3.6
	Piscium	7	29 40.5	49 40.5	56.50	0.30	− 0.75	+ 5 18 36.0	54.9	− 1.4
	ε "	4	32 46.9	52 46.9	56.49	0.38	− 1.08	+ 6 43 5.2	52.3	− 1.6
	73 "	6	34 43.5	54 43.5	56.49	0.25	− 0.55	+ 4 29 23.4	56.5	− 1.3
	ε "	5.6	38 17.0	0 58 17.0	56.48	0.25	− 0.55	+ 4 29 51.2	56.5	− 1.3
		6.7	42 18.6	1 2 18.6	56.48	2.07	+ 1.40	+ 32 55 51.4	16.5	+ 2.7
		6.7	45 21.3	5 21.3	56.47	2.00	+ 1.38	+ 31 57 13.9	17.6	+ 2.5
		7	47 37.8	7 37.8	56.47	2.34	+ 1.30	+ 36 13 34.6	13.0	+ 3.3
		7.8	50 43.7	10 43.7	56.46	2.92	+ 1.46	+ 42 25 36.8	6.5	+ 4.6
		6.7	54 55.6	14 55.6	56.46	2.11	+ 1.40	+ 33 26 15.2	16.0	+ 2.8
		6.7	55 55.0	15 55.0	56.45	2.10	+ 1.40	+ 33 14 0.0	16.2	+ 2.7
	ξ Androm.		1 58 16.0	18 16.0	56.45	3.30	+ 2.34	+ 45 51 51.7	3.0	+ 5.3
		8	2 1 29.3	21 29.3	56.44	0.91	− 1.50	+ 15 49 52.6	37.6	− 1.8
		7.8	4 12.5	24 12.5	56.44	1.00	− 1.42	+ 17 20 27.2	35.5	− 1.6
		8	8 42.2	28 42.2	56.43	2.54	+ 1.27	+ 38 28 1.0	10.6	+ 3.8
	2 Arietis	6	11 50.7	31 50.7	56.43	1.11	− 1.30	+ 19 12 1.6	33.0	− 1.3
		8	14 12.9	34 12.9	56.42	1.10	− 1.31	+ 18 59 12.2	33.2	− 1.3
a)		7	35 31.9	55 31.9	56.39	1.47	− 0.48			
	13 "	6	35 39.4	55 39.4	56.39	1.47	− 0.48	+ 24 39 5.0	26.0	+ 0.2
	β Trianguli	4	37 46.4	1 57 46.4	56.38	2.15	+ 1.39	+ 33 56 18.7	15.4	+ 2.9
	42 Ceti	6	41 0.5	2 1 0.5	56.38	0.42	− 1.28	+ 7 32 37.6	50.7	− 1.7
	ξ "	5.6	42 37.0	2 37.0	56.38	0.44	− 1.32	+ 7 49 8.5	50.3	− 1.7
		7	46 3.0	6 3.0	56.37	1.35	− 0.87	+ 22 44 45.9	28.5	− 0.2
		8	46 7.2	6 7.2	56.37	1.35	− 0.88	+ 22 51 0.0	28.2	− 0.2
		6.7	48 31.1	8 31.1	56.37	1.78	+ 1.05	+ 29 10 16.2	20.7	+ 1.6
		7.8	51 33.3	11 33.3	56.36	2.19	+ 1.37	+ 34 25 48.2	14.9	+ 3.0
		6	55 43.7	15 43.7	56.35	1.56	− 0.10	+ 26 1 9.0	24.4	+ 0.7
		6	2 59 12.2	19 12.2	56.35	1.44	− 0.59	+ 24 15 11.4	26.5	+ 0.1
		7	3 2 18.6	22 18.6	56.34	2.06	+ 1.40	+ 32 48 50.0	16.6	+ 2.7
b)		7	6 1.7	26 1.7	56.34	2.39	+ 1.28	+ 36 45 39.8	12.4	+ 3.5
c)	q Persei	4.5	9 43.3	29 43.3	56.33	2.61	+ 1.28	+ 39 14 51.8	9.8	+ 3.9
	37 Arietis	6.7	13 20.2	33 20.2	56.32	0.97	− 1.44	+ 16 49 43.8	36.3	− 1.7
		8.9	16 9.9	36 9.9	56.32	1.34	− 0.90	+ 22 42 21.8	28.4	− 0.3
	41 "	5.6	18 20.8	38 20.8	56.32	1.58	− 0.02	+ 26 20 38.3	24.0	+ 0.8
		7	21 26.2	41 26.2	56.31	1.90	+ 1.28	+ 30 43 54.3	18.9	+ 2.1
		7.8	23 38.3	43 38.3	56.31	1.13	− 1.28	+ 19 28 14.2	32.6	− 1.2
	ρ "	6.7	25 18.9	45 18.9	56.30	0.98	− 1.42	+ 17 8 25.2	35.7	− 1.7
	ε "	6.5	27 56.5	47 56.5	56.30	1.19	− 1.20	+ 20 27 10.1	31.3	− 1.0
	49 "	6	30 14.6	50 14.6	56.30	1.53	− 0.23	+ 25 34 51.2	24.9	+ 0.6
	ρ Persei	4	32 25.8	52 25.8	56.29	2.50	+ 1.27	+ 37 58 10.2	11.1	+ 3.7
	β "	4	35 13.5	55 13.5	56.29	2.69	+ 1.31	+ 40 5 18.8	8.9	+ 4.1
		7	39 0.6	2 59 0.6	56.28	2.83	+ 1.39	+ 41 31 23.8	7.4	+ 4.4
	α "	2.3	50 1.7	3 10 1.7	56.26	3.68	+ 3.26	+ 49 3 2.6	0.2	+ 5.6
		6	51 44.4	11 44.4	56.26	3.59	+ 3.10	+ 48 19 3.1	0.5	+ 5.5
		5.6	53 48.5	13 48.5	56.26	3.58	+ 3.09	+ 48 16 0.0	0.6	+ 5.5
	34 "	5	55 3.1	15 3.1	56.25	3.64	+ 3.19	+ 48 43 5.2	0.1	+ 5.6
	4 Tauri	6	3 59 41.1	19 41.1	56.25	0.60	− 2.67	+ 10 34 22.6	45.8	− 1.9
		7.6	4 2 53.9	22 53.9	56.24	0.98	− 1.42	+ 17 5 58.4	35.9	− 1.7
	9 "	7	5 20.7	25 20.7	56.24	1.32	− 0.94	+ 22 28 8.2	28.6	− 0.4
		8.9	7 20.2	27 20.2	56.23	1.42	− 0.66	+ 23 58 11.4	26.9	0.0
	11 "	7	8 56.7	28 56.7	56.23	1.47	− 0.50	+ 24 36 4.8	26.1	+ 0.2
		8	11 15.3	31 15.3	56.23	1.49	− 0.38	+ 24 57 47.4	25.7	+ 0.4
	m "		13 21.0	33 21.0	56.22	1.43	− 0.61	+ 24 7 53.6	26.7	0.0
	η Pleiadum	3	15 43.5	35 43.5	56.22	1.38	− 0.78	+ 23 24 29.7	27.6	− 0.1
	f "	6	17 24.0	37 24.0	56.22	1.38	− 0.79	+ 23 21 49.1	27.7	− 0.1
		7.8	21 38.3	41 38.3	56.21	1.49	− 0.38	+ 25 0 35.9	25.6	+ 0.4
		6.7	22 56.8	42 56.8	56.21	1.88	+ 1.23	+ 30 22 33.4	19.4	+ 2.0
d)		7.8	25 13.2	45 13.2	56.20	2.17	+ 1.38	+ 34 9 17.0	15.2	+ 2.9
e)		8	28 9.6	48 9.6	56.20	2.35	+ 1.30	+ 36 20 28.9	12.8	+ 3.4
	A Tauri	6.5	4 32 59.8	3 52 59.8	− 0 56.19	− 1.26	− 1.09	+ 21 27 45.0	− 0 30.1	− 0.7

a ζ assumed as that of a star whose catalogue place is 7′ 30″ from that of 13 Arietis.
b Div. assumed as 12 14 6; not 12 14 8.
c ζ assumed as 9° 36′ 13″; not 9° 36′ 43″.
d ζ assumed as 14° 41′ 48″; not 14° 41′ 18″.
e T. III assumed as 28m.; not 38m.

1784 OCTOBER 8 Zero corr. = + 1′ 39″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8	0 52 29.7	0 12 29.7	− 0 51.87	− 1.73	+ 0.67	+ 28 14 28.8	− 0 21.9	+ 1.4
a)	7.8	0 58 57.8	18 57.8	51.86	1.68	+ 0.42	+ 27 36 59.8	22.6	+ 1.2
	6	1 4 36.0	24 36.0	51.85	2.31	+ 1.32	+ 35 37 23.4	13.7	+ 3.2
π Androm.	4.5	6 20.2	26 20.2	51.85	2.05	+ 1.39	+ 32 30 42.9	17.1	+ 2.6
54 Piscium	6	9 7.5	29 7.5	51.84	1.17	− 1.23	+ 20 4 18.0	31.9	− 1.1
	7.8	10 37.5	30 37.5	51.84	1.16	− 1.24	+ 19 49 19.4	32.2	− 1.1
57 "	6	16 14.6	36 14.6	51.83	0.82	− 1.62	+ 14 17 9.1	40.0	− 2.0
64 "	6	18 37.4	38 37.4	51.83	0.91	− 1.51	+ 15 45 46.1	37.8	− 1.8
	6.7	22 36.5	42 36.5	51.82	2.36	+ 1.30	+ 36 13 35.0	13.0	+ 3.3
66 "	6	26	44				+ 18 0 14.0	34.7	− 1.5
2 h "	6	27 8.3	47 8.3	51.81	1.69	+ 0.49	+ 27 48 25.0	22.4	+ 1.2
"	7	29 35.5	49 35.5	51.81	0.30	− 0.75	+ 5 18 36.8	55.1	− 1.4
ε "	4	32 42.3	52 42.3	51.80	0.38	− 1.08	+ 6 43 5.4	52.4	− 1.6
79 "	6	37 22.5	0 57 22.5	51.80	1.15	− 1.26	+ 19 34 32.2	32.6	− 1.2
83 τ "	5	40 45.5	1 0 45.5	51.79	1.78	+ 0.93	+ 28 55 31.0	21.1	+ 1.6
	6	42 5.2	2 5.2	51.79	1.78	+ 0.93	+ 28 53 59.0	21.1	+ 1.6
	7	43 12.6	3 12.6	51.79	1.67	+ 0.33	+ 27 22 8.0	22.9	+ 1.1
υ "	5	48 35.7	8 35.7	51.78	1.57	− 0.08	+ 26 6 34.4	24.4	+ 0.7
92 "	7	53 14.7	13 14.7	51.77	0.96	− 1.45	+ 16 40 41.6	36.6	− 1.7
ρ "	5	1 55 37.1	15 37.1	51.76	1.05	− 1.39	+ 18 1 53.0	34.7	− 1.5
η "	4	2 0 55.9	20 55.9	51.76	0.82	− 1.63	+ 14 13 4.4	40.2	− 2.0
b) 101 "	7	5 13.3	25 13.3	51.75	0.78	− 1.71	+ 13 32 33.2	41.2	− 2.0
104 "	7	8 41.4	28 41.4	51.75	0.75	− 1.77	+ 13 10 30.2	41.7	− 2.0
107 "	6	11 46.7	31 46.7	51.74	1.12	− 1.30	+ 19 12 3.3	33.1	− 1.3
109 "	6.7	14 8.5	34 8.5	51.73	1.11	− 1.31	+ 18 59 14.4	33.4	− 1.3
4 Arietis	6.7	17 28.1	37 28.1	51.73	0.92	− 1.50	+ 15 51 49.6	37.8	− 1.8
	6.7	21 1.5	41 1.5	51.72	1.00	− 1.42	+ 17 12 37.8	35.8	− 1.7
	8.9	24 11.2	44 11.2	51.72	0.72	− 1.90	+ 12 40 47.8	42.5	− 2.0
ι "	6	26 33.4	46 33.4	51.71	0.96	− 1.45	+ 16 44 47.4	36.5	− 1.7
	6.7	28 37.0	48 37.0	51.71	1.17	− 1.23	+ 19 59 29.0	32.0	− 1.1
11 "	6.7	32 23.8	52 23.8	51.70	1.50	− 0.41	+ 24 52 24.4	25.9	+ 0.4
	7.8	33 7.2	53 7.2	51.70	1.50	− 0.42	+ 24 51 41.0	25.9	+ 0.4
13 "	6.7	35 34.8	55 34.8	51.70	1.48	− 0.48	+ 24 39 9.4	26.1	+ 0.3
	6.7	38 31.3	1 58 31.3	51.69	0.94	− 1.48	+ 16 11 37.4	37.2	− 1.8
15 "	6						+ 18 27 46.0	34.1	− 1.4
η "	6	41 42.6	2 1 42.6	51.69	1.19	− 1.22	+ 20 10 35.2	31.8	− 1.1
	8	42 52.7	2 52.7	51.68	1.08	− 1.34	+ 18 35 3.0	34.0	− 1.4
	7	45 58.6	5 58.6	51.68	1.35	− 0.89	+ 22 44 49.2	28.5	− 0.3
	7	48 26.6	8 26.6	51.68	1.80	+ 1.05	+ 29 10 21.2	20.8	+ 1.6
	8	51 28.6	11 28.6	51.67	2.20	+ 1.37	+ 34 25 49.2	14.9	+ 3.0
	8	54 30.2	14 30.2	51.67	1.45	− 0.60	+ 24 9 38.0	26.7	0.0
	6.7	55 38.9	15 38.9	51.66	1.57	− 0.11	+ 26 1 13.2	24.5	+ 0.7
26 "	6	2 59 32.4	19 32.4	51.66	1.11	− 1.32	+ 18 52 31.6	33.6	− 1.3
29 "	7	3 2 4.5	22 4.5	51.65	0.81	− 1.65	+ 14 3 35.4	40.4	− 2.0
32 "	5.6	5 52.1	25 52.1	51.65	0.65	− 3.01	+ 11 29 36.1	44.3	− 1.9
33 "	6.5	9 4.3	29 4.3	51.64	1.58	− 0.08	+ 26 6 29.0	24.4	+ 0.7
35 "	4	11 46.9	31 46.9	51.64	1.62	+ 0.11	+ 26 45 45.3	23.6	+ 1.0
c)	8.9	16 5.4	36 5.4	51.63	1.35	− 0.90	+ 22 42 25.0	28.6	− 0.3
16 Trianguli	7	17 12.4	37 12.4	51.63	1.45	− 0.59	+ 24 15 43.2	26.5	+ 0.1
	8	19 29.7	39 29.7	51.62	1.06	− 1.37	+ 18 14 53.4	34.4	− 1.5
ρ^2 Arietis	6.7	24 40.7	44 40.7	51.62	1.01	− 1.41	+ 17 26 5.0	35.5	− 1.6
ρ^3 "	6.7	25 14.9	45 14.9	51.61	0.99	− 1.42	+ 17 8 25.2	35.9	− 1.7
ε "	5	27 51.7	47 51.7	51.61	1.20	− 1.20	+ 20 27 11.2	31.4	− 1.0
52 "	6	33 46.4	53 46.4	51.60	1.46	− 0.55	+ 24 23 18.8	26.4	+ 0.1
54 "	6.7	37 6.8	2 57 6.8	51.59	1.05	− 1.39	+ 17 56 34.2	34.8	− 1.5
							+ 18 31 53.0	34.0	− 1.4
56 "	6	40 21.8	3 0 21.8	51.59	1.60	0.00	+ 26 24 52.8	24.1	+ 0.8
59 "	7	48 1.8	8 1.8	51.58	1.59	− 0.04	+ 26 15 40.7	24.2	+ 0.8
		48 37.1	8 37.1	51.58	1.49	− 0.42	+ 24 51 24.0	25.9	+ 0.4
64 Arietis	6	52 33.3	12 33.3	51.57	1.43	− 0.67	+ 23 55 52.3	27.1	0.0
	7.8	3 58 30.8	18 30.8	51.56	0.92	− 1.49	+ 15 59 41.9	37.7	− 1.8
7 Tauri	6	4 2 39.0	22 39.0	51.55	1.41	− 0.72	+ 23 42 43.3	27.3	0.0
9 "	7	5 16.3	25 16.3	51.55	1.33	− 0.94	+ 22 28 8.7	28.9	− 0.4
	8	7 16.0	27 16.0	51.54	1.43	− 0.66	+ 23 58 15.4	27.0	0.0
11 "	6.7	4 8 51.9	3 28 51.9	− 0 51.54	− 1.48	− 0.51	+ 24 36 6.2	− 0 26.2	+ 0.2

a T. III assumed as 24s.; not 34s. b ζ assumed as 35° 18′; not 35° 33′. c ζ assumed as 26° 8′ 40″; not 26° 8′ 50″.

1784 OCTOBER 8—Continued Zero corr. = + 1′ 39″. 5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
13 Tauri . .	6.7	4 12 17.8	3 32 17.8	— 0 51.54	— 1.11	— 1.31	+ 18 57 23.0	— 0 33.5	— 1.3
η Pleiadum .	3	15 38.7	35 38.7	51.53	1.40	— 0.77	+ 23 24 31.4	27.8	— 0.1
	6	17 20.5	37 20.5	51.53	1.40	— 0.79	+ 23 21 51.1	27.8	— 0.1
	8	22 21.1	42 21.1	51.52	1.26	— 1.11	+ 21 16 30.0	30.4	— 0.7
	6	25 5.7	45 5.7	51.51	1.29	— 1.04	+ 21 49 37.2	29.7	— 0.6
	6.7	29 32.0	49 32.0	51.51	1.15	— 1.27	+ 19 33 59.9	32.7	— 1.2
37 Tauri . .	5	4 32 55.5	3 52 55.5	— 0 51.50	— 1.26	— 1.08	+ 21 27 48.4	— 0 30.2	— 0.7

1784 OCTOBER 9 Zero corr. = + 1′ 38″. 6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
α Ophiuchi .	2	18 7 49.8	17 25 49.8	— 0 50.21	— 0.73	— 1.84	+ 12 42 50.9	— 0 42.0	— 2.0
β " . .	3	15 42.0	33 42.0	50.19	0.26	— 0.58	+ 4 39 31.7	55.6	— 1.4
γ " . .	4	18 19 57.3	17 37 57.3	50.19	0.15	— 0.25	+ 2 47 29.0	59.5	— 1.2
α Lyræ . .	1	19 12 30.8	18 30 30.8	50.10	2.58	+ 1.27	+ 38 34 9.2	10.4	+ 3.8
6 ζ " . .	5	18 13.8	38 13.8	50.09	2.46	+ 1.27	+ 37 21 59.6	11.7	+ 3.6
	5	18 15.8	38 15.8	50.09	2.46	+ 1.27	+ 37 21 28.0	11.7	+ 3.6
υ " . .	6	22 37.0	42 37.0	50.08	— 2.06	+ 1.39	+ 32 33 12.5	0 16.8	+ 2.6
9 K Aquilæ .	5.4	26 20.6	46 20.6	50.07	+ 0.34	+ 1.83	— 6 6 57.4	1 21.7	— 0.5
ε " . .	3.4	30 44.5	18 50 44.5	50.07	— 0.85	— 1.59	+ 14 46 20.8	0 38.8	— 1.9
19 Lyræ . .	6	46 24.0	19 4 24.0	50.04	2.60	+ 1.28	+ 38 48 0.6	10.2	+ 3.9
		47 35.9	5 35.9	50.04	2.62	+ 1.28	+ 39 2 40.2	9.8	+ 3.9
20 η " . .	5	49 17.8	7 17.8	50.04	2.59	+ 1.28	+ 38 45 43.6	10.4	+ 3.9
ω Aquilæ .	6.7	50 36.5	8 36.5	50.04	0.63	— 2.43	+ 11 12 19.4	44.4	— 1.9
	7.6	52	10				+ 11 8 0.0	44.5	— 1.9
	7.6	55 26.1	13 26.1	50.03	0.54	— 1.91	+ 9 29 40.0	47.1	— 1.8
b " . .	6	57 36.3	15 36.3	50.02	0.65	— 3.01	+ 11 28 57.8	44.0	— 1.9
4 Vulpeculæ	6	58 54.7	16 54.7	50.02	1.13	— 1.29	+ 19 22 21.6	32.5	— 1.2
	6	19 59 56.8	17 56.8	50.02	1.13	— 1.27	+ 19 27 34.2	32.4	— 1.2
	7	20 2 50.5	20 50.5	50.02	1.17	— 1.24	+ 19 49 52.1	31.8	— 1.1
	7.8	4 35.2	22 35.2	50.01	2.32	+ 1.31	+ 35 49 18.4	13.3	+ 3.3
	6	5 51.4	23 51.4	50.01	— 2.32	+ 1.31	+ 35 45 47.2	0 13.4	+ 3.3
ι Antinoi .	4.5	8 25.1	26 25.1	50.01	+ 0.10	+ 1.00	— 1 45 27.6	1 10.0	— 0.7
a)	7	10 53.7	28 53.7	50.00	— 0.17	— 0.27	+ 2 53 43.6	0 58.1	— 1.2
	6	12 49.3	30 49.3	50.00	3.14	+ 1.72	+ 44 12 4.4	4.6	+ 4.9
14 Cygni . .	6	15 18.3	33 18.3	49.99	2.94	+ 1.45	+ 42 18 17.4	6.6	+ 4.5
	7	16 35.3	34 35.3	49.99	2.97	+ 1.47	+ 42 33 36.8	6.3	+ 4.6
	6	19 22.8	37 22.8	49.99	2.41	+ 1.28	+ 36 49 16.4	12.2	+ 3.5
	6.7	22 41.7	40 41.7	49.97	2.52	+ 1.27	+ 37 51 40.5	11.2	+ 3.7
b)	7	36 30.3	54 30.3	49.96	1.04	— 1.40	+ 17 53 44.0	34.5	— 1.5
η Sagittæ .	6	38 29.8	56 29.8	49.96	1.14	— 1.28	+ 19 22 6.0	32.5	— 1.2
17 Vulpeculæ	6	40 31.6	19 58 31.6	49.95	— 1.37	— 0.86	+ 22 59 15.5	0 27.9	— 0.2
θ Aquilæ .	4.5	43 1.0	20 1 1.0	49.95	+ 0.08	+ 0.89	— 1 27 13.5	1 9.2	— 0.7
	6.7	44 56.5	2 56.5	49.95	+ 0.08	+ 0.95	— 1 38 54.9	1 9.7	— 0.7
	8	48 14.3	6 14.3	49.94	— 1.26	— 1.10	+ 21 18 52.3	0 30.1	— 0.7
	7	49 45.5	7 45.5	49.94	1.43	— 1.15	+ 20 55 57.2	30.9	— 0.8
	7.8	52 15.3	10 15.3	49.93	1.21	— 1.19	+ 20 31 54.2	31.0	— 0.9
	7	55 2.7	13 2.7	49.93	1.31	— 0.99	+ 22 9 33.4	28.9	— 0.5
h Cygni . .	5	20 58 7.5	16 7.5	49.92	1.98	+ 1.36	+ 31 29 5.2	18.0	+ 2.3
	8	21 1 11.2	19 11.2	49.92	2.68	+ 1.29	+ 39 40 53.2	9.3	+ 4.0
6 " . .	6	2 27.9	20 27.9	49.92	2.50	+ 1.27	+ 37 43 10.0	11.4	+ 3.6
	7	3 59.6	21 59.6	49.91	2.32	+ 1.31	+ 35 43 24.0	13.5	+ 3.2
	7	5 40.9	23 40.9	49.91	2.36	+ 1.30	+ 36 11 49.2	12.9	+ 3.3
ζ Delphini .	6	8 7.3	26 7.3	49.91	0.81	— 1.06	+ 13 55 41.0	40.1	— 2.0
7 κ " . .	6	11 33.6	29 33.6	49.90	0.53	— 1.80	+ 9 19 35.5	47.4	— 1.8
c)	7	13 53.8	31 53.8	49.89	1.12	— 1.30	+ 19 8 59.3	32.9	— 1.3
α Cygni . .	2	16 57.7	34 57.7	49.89	3.16	+ 1.79	+ 44 29 37.8	4.4	+ 5.0
30 Vulpeculæ	6						+ 24 29 32.0	26.1	+ 0.2
	9	23 46.8	41 46.8	49.88	1.62	+ 0.04	+ 26 34 0.0	23.6	+ 0.9
	7	25 12.4	43 12.4	49.88	1.67	+ 0.36	+ 27 26 3.2	22.6	+ 1.1
32 q " . .	5	28 15.5	46 15.5	49.87	1.66	+ 0.28	+ 27 13 45.6	22.9	+ 1.1
33 " . .	6	31 32.7	49 32.7	49.87	1.27	— 1.08	+ 21 29 11.6	29.9	— 0.7
	8	32 19.3	50 19.3	49.87	1.27	— 1.08	+ 21 30 26.0	29.9	— 0.7
	7	21 35 30.8	20 53 30.8	— 0 49.86	— 2.27	+ 1.33	+ 35 10 7.8	— 0 14.0	+ 3.1

a ζ assumed as 45° 57′; not 45° 56′. b ζ assumed as 30° 57′ 21″; not 30° 57′ 31″. c ζ assumed as 29° 42′ 6″; not 29° 42′ 16″.

1784 OCTOBER 9—Continued

Zero corr. = + 1′ 38″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8	21 39 2.8	20 57 2.8	— 0 49.85	— 1.17	— 1.23	+ 20 4 49.4	— 0 31.6	— 1.1
a)	6	42 23.1	21 0 23.1	49.85	1.81	+ 1.07	+ 29 19 30.0	20.5	+ 1.7
	7	45 17.2	3 17.2	49 84	2.29	+ 1.32	+ 35 24 19.9	13.8	+ 3.2
	6	21 47 50.7	5 50.7	49.84	1.79	+ 0.98	+ 29 0 1.8	20.8	+ 1.6
ε Pegasi . .	3	22 16 30.0	34 30.0	49.79	0.51	— 1.61	+ 8 53 4.9	48.2	— 1.8
81 π² Cygni . .	5	21 42.8	39 42.8	49.78	3.62	+ 3.09	+ 48 17 37.6	0.6	+ 5.5
	7	25 4.2	43 4.2	49.78	2.56	+ 1.27	+ 38 30 45.4	10.5	+ 3.8
	7.8	28 9.3	46 9.3	49.77	1.16	— 1.24	+ 19 49 16.4	32.0	— 1.2
	9	32 1.8	50 1.8	49.77	1.77	+ 0.91	+ 28 47 44.3	21.0	+ 1.5
	7	37 8.8	21 55 8.8	49.76	3.10	+ 1.60	+ 43 35 37.2	5.3	+ 4.8
	6.7	53 53.4	22 11 53.4	49.73	1.56	— 0.16	+ 25 50 23.6	24.4	+ 0.7
33 Pegasi . .	6	56 12.4	14 12.4	49.73	1.16	— 1.25	+ 19 45 2.1	32.1	— 1.0
	7	22 58 11.4	16 11.4	49.72	1.01	— 1.42	+ 17 20 27.4	35.3	— 1.6
	7	23 0 58.2	18 58.2	49.72	1.41	— 0.73	+ 23 40 57.6	27.0	— 0.1
	7.6	4 28.5	22 28.5	49.71	1.74	+ 0.75	+ 28 25 34.6	21.4	+ 1.4
	6.7	5 49.5	23 49.5	49.71	2.59	+ 1.27	+ 38 39 21.0	10.4	+ 3.8
	7.8	9 11.0	27 11.0	49.70	2.57	+ 1.27	+ 38 29 51.5	10.5	+ 3.8
11 Lacertæ .	6.5	13 58.7	31 58.7	49.70	3.02	+ 1.53	+ 43 7 59.7	5.7	+ 4.7
b) η Pegasi . .	3	15 47.7	33 47.7	49.69	1.79	+ 1.01	+ 29 4 54.0	20.7	+ 1.6
λ " . .	4	19 4.5	37 4.5	49.69	1.33	— 0.95	+ 22 25 16.5	28.6	— 0.4
μ " . .	4	23 22 31.3	22 40 31.3	49.68	1.40	— 0.77	+ 23 27 7.5	27.4	— 0.1
	7.8	1 14 33.0	0 32 33.0	49.49	0.89	— 1.53	+ 15 28 17.2	38.1	— 1.9
57 Piscium .	6	18 12.3	36 12.3	49.49	0.83	— 1.62	+ 14 17 10.4	39.8	— 2.0
64 " . .	6	20 35.1	38 35.1	49.49	0.91	— 1.50	+ 15 45 47.1	37.7	— 1.8
	6	26 6.8	44 6.8	49.48	1.05	— 1.39	+ 18 0 15.3	34.5	— 1.5
68 " . .	6	29 6.0	47 6.0	49.47	1.69	+ 0.49	+ 27 48 27.6	22.2	+ 1.3
	6	33 45.1	51 45.1	49.46	2.71	+ 1.32	+ 40 9 40.6	8.9	+ 4.1
31 " . .	6	37 3.9	55 3.9	59.46	1.19	— 1.21	+ 20 18 5.4	31.5	— 1.0
	6	37 5.0	55 5.0	49.46	1.19	— 1.21	+ 20 17 41.6	31.5	— 1.0
ψ² " . .	6	39 ½	0 57 ½				+ 19 34 34.0	32.4	— 1.2
9 " . .	6	42 9.3	1 0 9.3	49.45	1.88	+ 1.22	+ 30 15 24.0	19.5	+ 2.0
φ " . .	5	44 58.9	2 58.9	49.44	1.40	— 0.77	+ 23 25 21.6	0 27.5	— 0.1
89 " . .	6	49 34.2	7 34.2	49.44	0.13	— 0.19	+ 2 28 13.9	1 0.6	— 1.1
	8.9	53 28.5	11 28.5	49.43	0.85	— 1.60	+ 14 38 49.1	0 39.4	— 1.9
92 " . .	7	55 12.0	13 12.0	49.43	0.97	— 1.46	+ 16 40 43.5	36.4	— 1.7
98 " . .	7	1 59 22.3	17 22.3	49.42	0.24	— 0.50	+ 4 13 51.0	0 56.9	— 1.3
	9	2 3 59.3	21 59.3	49.41	0.15	— 0.21	+ 2 33 56.3	1 0.4	— 1.1
55 Mayer . .	8	6 29.2	24 29.2	49.41	0.40	— 1.18	+ 7 9 34.4	0 51.3	— 1.6
π Piscium .	5	8 37.4	26 37.4	49.40	0.63	— 2.88	+ 11 1 27.8	44.9	— 1.9
57 Mayer . .	7.8	9 9.6	27 9.6	49.40	0.63	— 2.87	+ 10 59		
107 Piscium	6	13 44.1	31 44.1	49.40	1.12	— 1.30	+ 19 12 4.3	33.0	— 1.3
109 " . .	6.7	16 5.7	34 5.7	49.39	1.12	— 1.31	+ 18 59 15.2	33.2	— 1.3
	7	19 10.0	39 10.0	49.38	1.25	— 1.11	+ 21 11 3.0	30.3	— 0.8
	8	21 5.8	41 5.8	49.38	1.37	— 0.85	+ 23 1 42.8	28.0	— 0.2
γ Arietis . .	4	24 38.2	42 38.2	49.38	1.06	— 1.37	+ 18 13 13.7	34.3	— 1.5
ι " . .	6	28 30.6	46 30.6	49.37	0.97	— 1.45	+ 16 44 50.8	36.3	— 1.7
	8	32 28.1	50 28.1	49.36	1.32	— 0.96	+ 22 19 52.2	28.8	— 0.4
	9	35 31.8	53 31.8	49.36	0.40	— 1.16	+ 7 2 52.2	51.7	— 1.6
α " . .	2	37 57.7	55 57.7	49.36	1.33	— 0.95	+ 22 25 16.0	28.8	— 0.4
16 " . .	7	41 37.2	1 59 37.2	49.35	1.08	— 1.35	+ 18 27 46.2	34.0	— 1.4
	7	52 52.3	2 10 52.3	49.33	1.30	— 1.03	+ 21 51 54.0	29.5	— 0.5
	7.8	56 27.8	14 27.8	49.32	1.44	— 0.60	+ 24 9 37.8	26.5	0.0
13 Trianguli .	7	2 59 5.4	17 5.4	49.32	1.79	+ 0.95	+ 28 56 4.8	21.0	+ 1.6
14 " . .	6	3 1 53.5	19 53.5	49.31	2.27	+ 1.33	+ 35 9 36.6	14.1	+ 3.1
	8	5 44.5	23 44.5	49.31	0.61	— 2.71	+ 10 38 25.7	45.6	— 1.9
υ Ceti . .	4.5	7 27.9	25 27.9	49.31	— 0.26	— 0.57	+ 4 38 18.8	0 56.3	— 1.4
δ " . .	3	11 18.5	29 18.5	49.30	+ 0.04	+ 0.58	— 0 36 44.9	1 7.5	— 0.7
γ " . .	3	15 1.3	33 1.3	49.29	— 0.13	— 0.16	+ 2 18 49.7	1 0.9	— 1.0
16 Trianguli .	6.7	19 10.2	37 10.2	49.29	1.46	— 0.58	+ 24 15 44.0	0 26.4	+ 0.1
	7.8	23 19.3	41 19.3	49.28	1.92	+ 1.28	+ 30 43 58.2	19.0	+ 2.1
	6	27 19.5	45 19.5	49.27	2.50	+ 1.27	+ 37 42 53.4	11.4	+ 3.6
λ Ceti . .	5.6	31 4.6	49 4.6	49.27	0.45	— 1.37	+ 8 1 49.2	49.9	— 1.7
α " . .	2	33 54.3	51 54.3	49.26	0.18	— 0.32	+ 3 13 44.9	58.9	— 1.2
β Persei . .	2.3	3 37 6.3	2 55 6.3	— 0 49.26	— 2.71	+ 1.31	+ 40 5 19.8	— 0 8.9	+ 4.1

a T. III assumed as 40m. 49s.5; not 40m. 41s.5.

b T. III assumed as 14m. 14s.; not 14m. 7s.

1784 OCTOBER 9—Continued Zero corr. = + 1′ 38″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	8	3 40 15.2	2 58 15.2	− 0 49.25	− 1.08	− 1.34	+ 18 31 59.2	− 0 33.9	− 1.4
57 δ Arietis . .	4	42 19.8	3 0 19.8	49.25	− 1.60	+ 0.02	+ 26 24 55.4	0 23.9	+ 0.8
a) α Fornacis .	3	45 41.1	3 41.1	49.24	+ 1.85	+ 4.79	− 29 47 5.6	4 38.6	− 5.3
α Persei . .	2.3	51 54.5	9 54.5	49.23	− 3.71	+ 3.26	+ 49 3 1.6	0 0.2	+ 5.6
o Tauri . .	4	56 7.8	14 7.8	49.23	0.47	− 1.42	+ 8 15 1.0	49.4	− 1.7
b)	7.8	58 22.5	16 22.5	49.22	0.69	− 2.62	+ 11 57 35.0	43.4	− 2.0
	7.8	3 59 46.1	17 46.1	49.22	0.61	− 2.70	+ 10 37 19.0	45.6	− 1.9
Tauri . .	6	4 1 33.7	19 33.7	49.22	0.61	− 2.67	+ 10 34 31.8	45.8	− 1.9
	7	4 47.3	22 47.3	49.21	0.99	− 1.42	+ 17 6 4.4	35.8	− 1.7
9 " . .	7	7 13.6	25 13.6	49.21	1.33	− 0.94	+ 22 28 12.0	28.8	− 0.4
11 " . .	7	10 49.3	28 49.3	49.20	1.48	− 0.50	+ 24 36 7.4	26.1	+ 0.2
g Pleiadum .	7	14 55.0	32 55.0	49.19	1.42	− 0.75	+ 23 34 51.0	27.4	− 0.1
b " . .	5	15 0.5	33 0.5	49.19	1.40	− 0.78	+ 23 24 25.0	27.6	− 0.1
η " . .	3	17 36.2	35 36.2	49.19	1.40	− 0.78	+ 23 24 32.0	27.6	− 0.1
f " . .	6	19 16.8	37 16.8	49.19	1.40	− 0.79	+ 23 21 53.1	27.6	− 0.1
	7	23 46.5	41 46.5	49.19	0.97	− 1.46	+ 16 39 34.4	36.5	− 1.7
	6	27 3.5	45 3.5	49.17	1.30	− 1.04	+ 21 49 41.2	29.6	− 0.6
	10.11	31 3.2	49 3.2	49.17	1.16	− 1.25	+ 19 46 37.0	32.3	− 1.1
Tauri . .	6.7	31 29.2	49 29.2	49.17	1.15	− 1.26	+ 19 34 2.2	32.5	− 1.2
39 " . .	6	34 52.9	52 52.9	49.16	1.26	− 1.09	+ 21 27 48.0	30.1	− 0.7
	7.8	38 53.0	56 53.0	49.16	1.39	− 0.81	+ 23 16 2.7	27.7	− 0.2
p " . .	6.7	40 37.3	3 58 37.3	49.15	1.57	− 0.14	+ 25 53 11.4	24.6	+ 0.7
c)	10	44 37.2	4 2 37.2	49.15	1.30	− 1.03	+ 21 52 33.0	29.6	− 0.5
48 " . .	7	46 27.5	4 27.5	49.14	0.86	− 1.58	+ 14 50 5.4	39.1	− 1.9
51 " . .	7	48 33.0	6 33.0	49.14	1.24	− 1.13	+ 21 1 24.0	30.6	− 0.8
	6						+ 21 13 26.0	30.4	− 0.8
59 χ Tauri . .	6	52 22.8	10 22.8	49.13	1.50	− 0.36	+ 25 5 18.5	25.5	+ 0.4
δ^2 " . .	4	54 34.8	12 34.8	49.13	0.98	− 1.44	+ 16 54 59.8	36.1	− 1.7
72 υ^2 " . .	6	57 19.5	15 19.5	49.12	1.33	− 0.94	+ 22 28 46.4	28.8	− 0.4
76 " . .	7	4 59 5.2	17 5.2	49.12	0.82	− 1.63	+ 14 14 5.0	40.1	− 2.0
d) 50 " . .	7	5 0 46.4	18 46.4	49.12	0.87	− 1.56	+ 15 8 26.0	38.7	− 1.9
e) 51 " . .	7	1	19				+ 15 11 46.0	38.6	− 1.9
85 " . .		2 28.1	20 28.1	49.11	0.89	− 1.54	+ 15 21 43.0	38.4	− 1.9
86 " . .	5	4 32.2	22 32.2	49.11	0.83	− 1.62	+ 14 21 52.0	39.8	− 2.0
Aldebaran	1	6 28.4	24 28.4	49.11	0.93	− 1.49	+ 16 2 52.3	37.4	− 1.8
90 c^1 Tauri . .	5	9 2.3	27 2.3	49.10	0.69	− 2.50	+ 12 3 10.1	43.4	− 2.0
93 c^2 " . .	6	10 59.5	28 59.5	49.10	0.67	− 2.84	+ 11 44 53.2	43.8	− 2.0
f)	7	15 36.4	33 36.4	49.09	1.38	− 0.82	+ 23 11 58.0	27.9	− 0.2
	6.7	20 18.7	38 18.7	49.08	0.90	− 1.52	+ 15 30 0.5	38.2	− 1.9
	7	26 2.5	44 2.5	49.08	1.45	− 0.59	+ 24 12 51.4	26.6	+ 0.1
	6.7	27 38.9	45 38.9	49.07	1.41	− 0.75	+ 23 34 45.5	27.4	− 0.1
g) ι " . .	4	33 7.3	51 7.3	49.06	1.26	− 1.10	+ 21 15 4.6	30.3	− 0.7
	6	38 52.7	55 52.7	49.06	1.43	− 0.67	+ 23 56 48.3	26.9	0.0
γ Orionis .	6	40 16.1	4 58 16.1	49.05	0.88	− 1.55	+ 15 17 35.2	38.5	− 1.9
Capella .	1	43 40.5	5 1 40.5	49.05	− 3.30	+ 2.28	+ 45 43 45.8	0 3.2	+ 5.3
h) Rigel . .	1	46 59.8	4 59.8	49.04	+ 0.47	+ 1.87	− 8 27 40.1	1 30.3	− 0.5
	8.7	50 29.8	8 29.8	49.03	− 1.13	− 1.29	+ 19 19 32.0	0 32.9	− 1.2
	7.8	51 7.6	9 7.6	49.03	1.15	− 1.27	+ 19 33 54.0	32.6	− 1.2
β Tauri . .	2	55 33.4	13 33.4	49.03	1.74	+ 0.74	+ 28 23 15.6	21.7	+ 1.4
o " . .	6	5 57 35.7	15 35.7	49.02	1.28	− 1.05	+ 21 43 11.4	29.9	− 0.6
	8.9	6 1 57.1	19 57.1	49.02	1.05	− 1.38	+ 18 3 7.0	34.7	− 1.5
	6	2 28.7	20 28.7	49.01	1.07	− 1.35	+ 18 24 8.0	34.1	− 1.4
	6.7	3 48.2	21 48.2	49.01	− 1.07	− 1.35	+ 18 21 18.6	0 34.2	− 1.4
ε Orionis .	2	8 6.7	26 6.7	49.01	+ 0.08	+ 0.86	− 1 21 23.6	1 9.4	− 0.7
ζ " . .	2	12 43.3	30 43.3	49.00	+ 0.11	+ 1.08	− 2 4 22.0	1 11.4	− 0.7
	7	17 15.6	35 15.6	48.99	− 0.91	− 1.51	+ 15 42 32.2	0 38.0	− 1.8
135 Tauri . .	6	21 7.2	39 7.2	48.98	0.82	− 1.63	+ 14 12 48.3	40.2	− 2.0
139 " . .	6	27 30.3	45 30.3	48.97	1.56	− 0.14	+ 25 53 26.0	24.5	+ 0.7
	7	28 25.4	46 25.4	48.97	1.55	− 0.19	+ 25 43 12.7	24.9	+ 0.6
H Geminorum	4	33 54.3	51 54.3	48.96	1.38	− 0.81	+ 23 14 26.3	27.9	− 0.1
	7.8	36 34.0	54 34.0	48.96	1.41	− 0.74	+ 23 37 16.0	27.4	− 0.1
	7	6 39 32.4	5 57 32.4	− 0 48.95	− 1.37	− 0.83	+ 23 6 47.8	− 0 28.0	− 0.2

a ζ assumed as 78° 38′ 10″; not 78° 38′ 20″.
b ζ assumed as 36° 53′; not 36° 48′.
c ζ assumed as 26° 58′; not 26° 59′.
d Name assumed as 80 Tauri; not 50 Tauri.
e Transits discordant; name assumed as 81 Tauri.
f ζ assumed as 25° 39′ 7″; not 25° 39′ 37″.
g ζ assumed as 27° 36′ 5″; not 27° 36′ 25″.
h ζ assumed as 57° 18′ 47″; not 57° 18′ 17″.

1784 OCTOBER 9—Continued Zero corr. = + 1′ 38″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	6 42 8.6	6 0 8.6	− 0 48.95	− 1.37	− 0.87	+ 22 55 18.4	− 0 28.2	− 0.2
η Geminorum	4.5	44 45.3	2 45.3	48.94	1.34	− 0.93	+ 22 32 4.8	28.2	− 0.3
	7	48 39.3	6 39.3	48.94	1.41	− 0.73	+ 23 38 58.0	27.4	− 0.1
μ " . .	3	52 48.4	10 48.4	48.93	1.34	− 0.92	+ 22 35 19.2	28.7	− 0.3
	7	6 55 20.4	13 20.4	48.93	1.39	− 0.78	+ 23 24 33.0	27.7	− 0.1
a)	7.6	7 1 33.3	19 33.3	48.92	0.99	− 1.43	+ 17 3 37.1	36.1	− 1.7
	7.8	4 49.2	22 49.2	48.91	1.15	− 1.26	+ 19 33 40.8	32.6	− 1.2
γ " . .	2.3	8 8.6	26 8.6	48.91	0.96	− 1.47	+ 16 33 5.9	36.7	− 1.7
	7	10 37.5	28 37.5	48.91	1.74	+ 0.73	+ 28 21 23.8	21.7	+ 1.4
ε " . .	3	13 32.5	31 32.5	48.90	− 1.53	− 0.30	+ 25 18 27.8	0 25.4	+ 0.5
Sirius .	1	18 26.4	36 26.4	48.89	+ 0.95	+ 1.67	− 16 25 11.6	2 5.4	− 0.5
61 Aurigæ .	6	22 1.8	40 1.8	48.88	− 2.59	+ 1.28	+ 38 43 25.6	0 10.4	+ 3.8
b)	6	24 55.1	42 55.1	48.88	1.55	− 0.22	+ 25 36 31.4	25.0	+ 0.6
Geminorum	6	28 22.4	46 22.4	48.87	1.59	− 0.02	+ 26 19 33.6	24.0	+ 0.8
	6	29 1.3	47 1.3	48.87	− 1.58	− 0.06	+ 26 10 14.5	0 24.3	+ 0.7
ε Can. Maj.	3.2	32 53.3	50 53.3	48.86	+ 1.77	+ 4.34	− 28 38 12.8	4 15.3	− 4.3
63 Aurigæ .	4.5	39 40.7	6 57 40.7	48.86	− 2.68	+ 1.29	+ 39 37 34.8	0 9.5	+ 4.0
m Geminorum	6	42 12.2	7 0 12.2	48.85	1.46	− 0.53	+ 24 27 11.2	26.4	+ 0.2
	6	45 20.4	3 20.4	48.84	1.74	+ 0.68	+ 28 14 3.2	21.9	+ 1.4
δ " . .	3	50 7.4	8 7.4	48.83	1.33	− 0.96	+ 22 20 39.6	29.0	− 0.4
Uranus .		54 4.7	12 4.7	48.83	1.37	− 0.88	+ 22 50 7.8	28.4	− 0.2
τ Geminorum	6	7 57 5.9	15 5.9	48.82	1.22	− 1.18	+ 20 39 15.2	31.2	− 0.9
α " . .	1.2	8 3 40.6	21 40.6	48.81	2.04	+ 1.39	+ 32 19 11.2	17.3	+ 2.6
	6	7 14.0	25 14.0	48.81	2.30	+ 1.32	+ 35 29 20.6	13.8	+ 3.2
Procyon .	1	10 52.0	28 52.0	48.80	0.32	− 0.87	+ 5 45 19.8	54.3	− 1.5
c) κ Geminorum	4.5	8 14 17.0	7 32 17.0	− 0 48.79	− 1.50	− 0.41	+ 24 52 46.6	− 0 25.9	+ 0.4

d) **1784 OCTOBER 12** Zero corr. = + 1′ 41″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
δ Geminorum	3	7 49 10.8	7 9 10.8	− 1 52 60	− 1.36	− 0.96	+ 22 20 35.8	− 0 29.0	− 0.4
Uranus .		53 15.5	13 15.5	1 52.59	1.40	− 0.89	+ 22 49 58.3	28.4	− 0.3
τ Geminorum	6	56 9.8	16 9.8	1 52.59	1.25	− 1.18	+ 20 39 16.8	31.2	− 0.9
	6	7 58 18.6	18 18.6	1 52.58	1.79	+ 0.71	+ 28 19 22.4	21.8	+ 1.4
α " . .	1.2	8 2 44.5	22 44.5	1 52.58	2.10	+ 1 39	+ 32 19 12.2	17.3	+ 2.6
	6.7	6 17.5	26 17.5	1 52.57	2.37	+ 1.32	+ 35 29 22.6	13.8	+ 3.2
Procyon .	1	9 55.7	29 55.7	1 52.57	0.33	− 0.87	+ 5 45 14.8	54.4	− 1.5
κ Geminorum	4.5	13 20.7	33 20.7	1 52.56	1.54	− 0.41	+ 24 52 44.1	25.9	+ 0.4
		8 15 33.7	7 35 33.7	− 1 52.56	− 1.14	− 1.31	+ 19 0 13.4	− 0 33.4	− 1.3

1784 OCTOBER 13 Zero corr. = + 1′ 39″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
Sun II limb		13 59 38.5	13 19 38.5				− 7 51 16.2	− 1 28.2	− 0.5
e) Venus . .		15 5 55.7	14 25 55.7				− 13 59 8.6	1 52.7	− 0.4
Aldebaran	1	5 5 29.8	4 25 29.8	− 1 50.64	− 0.98	− 1.49	+ 16 2 49.2	0 37.5	− 1.8
	6.7	14 38.5	34 38.5	1 50.62	1.43	− 0.82	+ 23 11 54.4	27.9	− 0.2
	7	18 1.5	38 1.5	1 50.62	1.11	− 1.36	+ 18 19 10.2	34.4	− 1.4
97 Tauri . .	6	20 42.3	40 42.3	1 50.61	1.12	− 1.35	+ 18 26 33.7	34.2	− 1.4
	7.8	24 14.8	44 14.8	1 50.61	1.15	− 1.30	+ 19 6 19.0	33.3	− 1.3
f) γ " . .	4	32 9.3	52 9.3	1 50.59	1.30	− 1.11	+ 21 14 55.4	30.3	− 0.7
	7	33 27.3	53 27.3	1 50.59	1.28	− 1.15	+ 20 56 36.5	30.8	− 0.8
	7.6	36 58.9	4 56 58.9	1 50.59	1.30	− 1.09	+ 21 23 14.1	30.3	− 0.7
μ Persei . .	6.5	40 37.6	5 0 37.6	1 50.58	2.62	+ 1.27	+ 38 11 6.2	11.0	+ 3.7
Capella .	1	42 42.6	2 42.6	1 50.58	− 3.43	+ 2.28	+ 45 43 45.8	0 3.2	+ 5.3
Rigel . .	1	46 1.7	6 1.7	1 50.57	+ 0.49	+ 1.87	− 8 27 40.6	1 30.3	− 0.5
	7.6	49 32.0	9 32.0	1 50.56	− 1.18	− 1.29	+ 19 19 33.0	0 32.9	− 1.2
	6	50 8.6	10 8.6	1 50.56	1.19	− 1.27	+ 19 33 52.0	32.7	− 1.2
	6	53 6.8	13 6.8	1 50.56	0.98	− 1.47	+ 16 27 55.5	36.9	− 1.8
	7.6	55 34.0	15 34.0	1 50.55	0.98	− 1.47	+ 16 28 42.8	36.9	− 1.8
	6	5 57 55.6	5 17 55.6	− 1 50.55	− 1.56	− 0.40	+ 24 56 16.6	− 0 25.8	+ 0.4

a T. I assumed as 59m.; not 56m.
b T. II assumed as 21m. 55s.; not 22m. 25s.
c T. I assumed as 11m.; not 12m.
d Date assumed as Oct. 12; not Oct. 13.
e Hour assumed as 14; not 15.
f Name assumed as ι Tauri; not γ Tauri.

1784 OCTOBER 13—Continued Zero corr. = + 1′ 39″.5.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
δ Orionis	2	6 2 52.3	5 22 52.3	− 1 50.54	+ 0.02	+ 0.53	− 0 28 36.5	− 1 7.5	− 0.8
ε "	2	7 8.5	27 8.5	1 50.54	0.08	+ 0.86	− 1 21 24.0	9.6	− 0.7
ζ "	2	11 44.8	31 44.8	1 50.53	+ 0.12	+ 1.08	− 2 4 23.6	1 11.5	− 0.7
	9.10	14 24.1	34 24.1	1 50.52	− 0.96	− 1.49	+ 15 57 42.0	0 37.8	− 1.8
	7	16 17.3	36 17.3	1 50.52	0.94	− 1.51	+ 15 42 31.2	38.1	− 1.8
a) 136 Tauri	6	19 18.0	39 18.0	1 50.51	1.77	+ 0.50	+ 27 51 53.9	22.4	+ 1.3
137 "	6	22 3.2	42 3.2	1 50.51	0.83	− 1.64	+ 14 5 16.6	40.5	− 2.0
	7.6	25 39.2	45 39.2	1 50.50	1.50	− 0.60	+ 24 10 52.2	26.7	+ 0.1
	7.8	27 27.0	47 27.0	1 50.50	1.61	− 0.19	+ 25 43 11.0	24.9	+ 0.6
	7.8	30 35.6	50 35.6	1 50.50	1.38	− 0.96	+ 22 21 35.0	29.0	− 0.4
H Geminórum		32 56.3	52 56.3	1 50.49	1.43	− 0.81	+ 23 14 22.4	27.9	− 0.2
	7.8	35 35.4	5 55 35.4	1 50.49	1.46	− 0.74	+ 23 37 22.6	27.5	− 0.1
	6	40 13.7	6 0 13.7	1 50.48	1.51	− 0.54	+ 24 25 50.9	26.5	+ 0.2
η "	4.5	43 47.3	3 47.3	1 50.48	1.39	− 0.93	+ 22 32 1.6	28.8	− 0.3
	7	47 41.3	7 41.3	1 50.47	1.47	− 0.74	+ 23 38 57.2	27.4	− 0.1
b)	7	48 6.9	8 6.9	1 50.47	1.46	− 0.76	+ 23 31 10.6	27.6	− 0.1
	6	54 21.3	14 21.3	1 50.46	1.45	− 0.78	+ 23 24 36.8	27.7	− 0.1
	6.7	57 2.4	17 2.4	1 50.45	1.26	− 1.19	+ 20 35 30.6	31.3	− 0.9
ν "	4	6 58 4.7	18 4.7	1 50.45	1.24	− 1.21	+ 20 18 51.4	31.7	− 1.0
	6.7	7 1 8.5	21 8.5	1 50.44	0.96	− 1.49	+ 16 1 24.2	37.6	− 1.8
	7	4 23.1	24 23.1	1 50.44	0.98	− 1.48	+ 16 20 28.0	37.2	− 1.8
	7.8	5 28.0	25 28.0	1 50.44	1.02	− 1.44	+ 16 56 21.0	36.3	− 1.7
γ "	3	7 11.0	27 11.0	1 50.43	1.00	− 1.47	+ 16 33 6.8	36.9	− 1.7
ε "	3	12 34.3	32 34.3	1 50.43	− 1.58	− 0.30	+ 25 18 23.6	0 25.4	+ 0.5
Sirius	1	17 28.2	37 28.2	1 50.42	+ 0.98	+ 1.67	− 16 25 13.7	2 5.7	− 0.5
c)	6	24 23.6	44 23.6	1 50.41	− 0.79	− 1.73	+ 13 25 19.2	0 41.5	− 2.0
	8	29 30.5	49 30.5	1 50.40	− 1.47	− 0.73	+ 23 42 9.0	0 27.4	− 0.1
ε Can. Maj.	2.3	31 54.8	6 51 54.8	1 50.39	+ 1.83	+ 4.34	− 28 38 13.4	4 15.8	− 4.3
	8	40 52.9	7 0 52.9	1 50.38	− 0.94	− 1.51	+ 15 39 19.0	0 38.1	− 1.8
d)	8	42 23.9	2 23.9	1 50.38	0.93	− 1.52	+ 15 30 32.0	38.3	− 1.8
	7.8	45 34.4	5 34.4	1 50.37	1.55	− 0.41	+ 24 52 49.6	25.9	+ 0.4
δ Geminorum	3	49 8.8	9 8.8	1 50.36	1.38	− 0.96	+ 22 20 37.3	29.0	− 0.4
Uranus		53 15.5	13 15.5	1 50.36	1.41	− 0.88	+ 22 49 56.5	28.4	− 0.3
e)	6	7 57 4.2	17 4.2	1 50.35	0.73	− 2.15	+ 12 21 17.9	43.0	− 2.0
	6	8 1 16.5	21 16.5	1 50.34	1.05	− 1.41	+ 17 30 45.7	35.5	− 1.6
2 Geminorum	6.5	4 30.6	24 30.6	1 50.34	1.73	+ 0.33	+ 27 20 15.2	23.0	+ 1.1
	7	6 50.9	26 50.9	1 50.34	1.18	− 1.29	+ 19 22 20.6	33.0	− 1.2
Procyon	1	9 53.7	29 53.7	1 50.33	0.33	− 0.87	+ 5 45 13.5	54.4	− 1.5
	6	15 32.3	35 32.3	1 50.32	1.15	− 1.31	+ 19 0 12.8	33.4	− 1.3
26 Lyncis	5	8 20 50.8	7 40 50.8	− 1 50.31	− 3.72	+ 3.05	+ 48 4 18.0	− 0 0.8	+ 5.5

1784 OCTOBER 14 Zero corr. = + 1′ 40″.3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
Sun		14 1 8.3	13 21 8.3				− 8 45 56.8	− 1 31.3	− 0.4
"		14 3 19.7	13 23 19.7				− 8 13 41.2	1 29.4	− 0.5
α Lyræ	1	19 11 29.6	18 31 29.6	− 1 49.10	− 2.68	+ 1.27	+ 38 34 10.8	0 10.5	+ 3.8
	7	21 7.9	41 7.9	1 49.10	− 1.45	− 0.81	+ 23 15 59.0	0 27.8	− 0.2
k Aquilæ	4.5	27 19.6	47 19.6	1 49.07	+ 0.35	+ 1.84	− 6 7 0.8	1 22.7	− 0.5
ε "	3.4	31 43.7	18 51 43.7	1 49.07	− 0.88	− 1.59	+ 14 46 21.2	0 39.3	− 1.9
		40 9.8	19 0 9.8	1 49.05	1.00	− 1.47	+ 16 31 43.2	36.8	− 1.7
		40 54.1	0 54.1	1 49.05	1.00	− 1.47	+ 16 30 39.4	36.8	− 1.7
η Lyræ	6	48 16.8	8 16.8	1 49.04	2.70	+ 1.28	+ 38 45 39.6	10.4	+ 3.9
	7	52 14.5	12 14.5	1 49.03	1.70	+ 0.14	+ 26 51 22.6	23.5	+ 1.0
3 Vulpeculæ	6.5	55 53.2	15 53.2	1 49.02	1.63	− 0.15	+ 25 50 26.2	24.7	+ 0.7
	7	57 51.6	17 51.6	1 49.02	1.21	− 1.24	+ 19 50 30.0	32.2	− 1.1
5 "	6	19 58 41.1	18 41.1	1 49.02	1.20	− 1.26	+ 19 39 51.0	32.5	− 1.2
	7	20 0 22.7	20 22.7	1 49.02	1.21	− 1.25	+ 19 48 15.4	32.3	− 1.1
7 "	6	1 49.8	21 49.8	1 49.01	− 1.21	− 1.24	+ 19 49 49.0	0 32.3	− 1.1
		5 2.3	25 2.3	1 49.01	+ 0.65	+ 1.72	− 11 1 4.2	1 39.7	− 0.3
	6	20 7 23.5	19 27 23.5	− 1 49.00	+ 0.10	+ 1.00	− 1 45 30.0	− 1 10.5	− 0.7

a Transits over Ts. II and III assumed as recorded over Ts. I and II.

b } assumed as 25° 19′; not 25° 18′.
c } assumed as 35° 25′ 47″; not 35° 25′ 17″.

d Transits over Ts. I and II assumed as recorded over Ts. II and III.

e Div. assumed as 38 14 14; not 39 14 13.

1784 OCTOBER 14—Continued — Zero corr. = + 1′ 40″.3.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
		6	20 8 9.4	19 28 9.4	− 1 49.00	+ 0.29	+ 1 75	− 5 7 10.9	− 1 19.7	− 0.5
		6	9	29				+ 41 55 35.0	0 7.1	+ 4.5
		6	11	31				+ 37 53 15.0	11.3	+ 3.7
	14 Cygni . .	6	14 17.0	34 17.0	1 48.99	− 3.05	+ 1.45	+ 42 18 14.4	6.7	+ 4.6
		7	20 15 33.8	19 35 33.8	− 1 48.99	− 3.08	+ 1.47	+ 42 33 35.8	− 0 6.4	+ 4.6

1784 OCTOBER 15 — Zero corr. = + 1′ 40″.6.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
	Sun . .		14 4 50.0	13 24 50.0				− 9 8 10.8	− 1 32.8	− 0.4
	" . .		14 7 0.8	13 27 0.8				− 8 35 55.6	30.9	− 0.4
	Venus . .		15 15 29.0	14 35 29.0				− 14 51 10.0	1 57.0	− 0.5
	α Lyræ . .	1	19 11 26.6	18 31 26.6	− 1 46.64	− 2.71	+ 1.27	+ 38 34 11.0	0 10.6	+ 3.8
			19 9.7	39 9.7	1 46.63	2.59	+ 1.27	+ 37 21 58.4	11.9	+ 3.6
a)			23 33.0	43 33.0	1 46.62	− 2.13	+ 1.39	+ 32 33 10.8	0 17.0	+ 2.5
	k Aquilæ .	4.5	27 16.8	47 16.8	1 46.61	+ 0.36	+ 1.84	− 6 6 59.6	1 22.9	− 0.5
	ζ Sagittarii .	3.4	30 34.5	50 34.5	1 46.61	1.96	+ 4.89	− 30 7 12.8	4 48.5	− 5.6
	π " .	4	38 42.3	18 58 42.3	1 46.59	1.33	+ 1.51	− 21 20 11.6	2 39.8	− 1.1
	d " . .	5	46 46.5	19 6 46.5	1 46.58	1.19	+ 1.41	− 19 18 36.0	2 24.0	− 0.7
	44 ρ^1 " . .	5	50 54.8	10 54.8	1 46.57	+ 1.12	+ 1.51	− 18 13 44.2	2 16.6	− 0.6
			56 31.2	16 31.2	1 46.56	− 1.01	− 1.47	+ 16 30 51.0	0 36.9	− 1.7
			56 54.2	16 54.2	1 46.56	− 1.01	− 1.47	+ 16 31 54.4	0 36.9	− 1.7
	Saturn . .		19 58 59.0	18 59.0	1 46.56	+ 1.40	+ 1.69	− 22 20 7.0	2 48.8	− 1.3
		6	20 7 20.0	27 20.0	1 46.54	0.10	+ 1.00	− 1 45 30.0	1 10.7	− 0.7
		6						− 5 7 14.0	19.9	− 0.5
		6	11 24.3	31 24.3	1 46.54	+ 0.06	+ 0.78	− 1 6 54.5	1 9.2	− 0.7
	15 Cygni . .	6	14 14.4	34 14.4	1 46.53	− 3.09	+ 1.45	+ 42 18 18.0	0 6.7	+ 4.6
		6	15 31.2	35 31.2	1 46.53	3.12	+ 1.47	+ 42 33 32.8	6.5	+ 4.6
		7	17 24.2	37 24.2	1 46.52	2.66	+ 1.27	+ 38 8 41.6	11.0	+ 3.7
		6.7	20 35.9	40 35.9	1 46.51	1.57	− 0.42	+ 24 50 37.2	26.0	+ 0.4
		6	23 37.1	43 37.1	1 46.51	1.38	− 1.01	+ 22 3 19.3	29.4	− 0.5
		6	26 7.0	46 7.0	1 46.51	1.48	− 0.76	+ 23 30 38.0	27.6	− 0.1
		6.7	27 11.8	47 11.8	1 46.50	1.50	− 0.71	+ 23 44 51.8	27.3	0.0
		6.7	31 45.6	51 45.6	1 46.49	1.41	− 0.93	+ 22 30 27.7	28.8	− 0.4
		6	34 26.5	54 26.5	1 46.49	1.53	− 0.60	+ 24 11 42.0	26.7	+ 0.1
b)	16 Vulpeculæ	5.6	34 43.1	54 43.1	1 46.49	1.54	− 0.57	+ 24 19 39.0	26.5	+ 0.1
		7	37 15.7	19 57 15.7	1 46.48	2.42	+ 1.32	+ 35 24 21.9	13.9	+ 3.2
		6.7	41 14.8	20 1 14.8	1 46.48	2.27	+ 1.39	+ 33 47 8.1	15.9	+ 2.9
		7	43 24.2	3 24.2	1 46.47	1.27	− 1.19	+ 20 29 14.6	31.5	− 1.0
	21 " . .	6	47 12.3	7 12.3	1 46.47	1.81	+ 0.58	+ 28 1 57.6	22.2	+ 1.3
		7	48 41.8	8 41.8	1 46.47	1.30	− 1.15	+ 20 55 50.0	30.9	− 0.8
		7.8	48 56.3	8 56.3	1 46.47	1.29	− 1.17	+ 20 44 5.0	31.2	− 0.9
		8	51 11.3	11 11.3	1 46.46	1.27	− 1.19	+ 20 31 48.9	31.5	− 0.9
	25 " . .	6	54 37.3	14 37.3	1 46.45	1.50	− 0.71	+ 23 45 4.0	27.4	0.0
	h Cygni . .	6.5	20 57 3.7	17 3.7	1 46.45	2.08	+ 1.35	+ 31 29 2.7	18.3	+ 2.3
		8	21 0 7.8	20 7.8	1 46.44	2.82	+ 1.29	+ 39 40 52.6	9.4	+ 4.0
		6.7	2 15.7	22 15.7	1 46.43	3.86	+ 3.17	+ 48 38 58.7	0.2	+ 5.6
	ω^2 " . .	6	5 11.6	25 11.6	1 46.43	3.79	+ 3.08	+ 48 12 32.4	0.6	+ 5.5
	ω^3 " . .	6	6 28.8	26 28.8	1 46.43	3.83	+ 3.13	+ 48 28 30.3	0.4	+ 5.5
c)		7	8 40.3	28 40.3	1 46.42	3.51	+ 2.36	+ 45 56 11.4	3.0	+ 5.3
		8	12 10.3	32 10.3	1 46.42	3.06	+ 1.43	+ 42 3 47.6	7.0	+ 4.5
	α " . .	2	15 54.5	35 54.5	1 46.41	3.33	+ 1.80	+ 44 29 36.2	4.4	+ 5.0
		6.7	26 59.1	46 59.1	1 46.39	2.17	+ 1.39	+ 32 36 22.8	17.0	+ 2.6
d)	ν " . .	4.5	30 58.2	50 58.2	1 46.39	2.89	+ 1.32	+ 40 19 18.7	3.6	+ 4.1
		6.7	34 27.2	54 27.2	1 46.38	2.40	+ 1.33	+ 35 10 4.8	14.2	+ 3.1
		6.7	36 32.2	56 32.2	1 46.38	2.63	+ 1.27	+ 37 47 30.8	11.4	+ 3.7
		6	39 4.1	59 4.1	1 46.37	2.63	+ 1.27	+ 37 40 43.0	11.5	+ 3.6
		7	39 5.7	20 59 5.7	1 46.37	2.63	+ 1.27	+ 37 40 50.0	11.5	+ 3.6
			41 19.6	21 1 19.6	1 46.37	1.91	+ 1.07	+ 29 19 26.8	20.8	+ 1.7
		8	44 25.8	4 25.8	1 46.36	1.87	+ 0.91	+ 28 49 6.8	21.3	+ 1.6
	ζ " . .	6.5	45 35.1	5 35.1	1 46.36	1.91	+ 1.07	+ 29 19 59.0	20.8	+ 1.7
		7	21 46 47.2	21 6 47.2	− 1 46.36	− 1.89	+ 0.98	+ 28 59 56.4	− 0 21.1	+ 1.6

a Transits over Ts. II and III assumed as 23m. 32s.5 and 24m. 0s.5; not 23m. 42s.5 and 24m. 10s.5, respectively.

b T. II assumed as 34m. 44s.5; not 34m. 34s.5.

c Div. assumed as 3 1 12; not 3 1 2.

d ζ assumed as 8°; not 3°.

1784 OCTOBER 15—Continued Zero corr. = + 1′ 40″.6.

Name	Mag.	T	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	6	21 50 46.8	21 10 46.8	− 1 46.35	− 2.70	+ 1.27	+ 38 28 39.0	− 0 10.7	+ 3.8
	7	52 36.5	12 36.5	1 46.35	2.59	+ 1.27	+ 37 18 51.8	11.9	+ 3.6
	7	53	13				+ 31 41 5.0	18.0	+ 2.4
	7	56 28.3	16 28.3	1 46.33	2.51	+ 1.30	+ 36 28 5.6	12.8	+ 3.4
		56 54.5	16 54.5	1 46.33	2.51	+ 1.30	+ 36 24 53.0	12.9	+ 3.4
69 Cygni . .	7	21 58 48.6	18 48.6	1 46.33	2.45	+ 1.31	+ 35 43 25.4	13.7	+ 3.2
70 " . .	6	22 0 24.0	20 24.0	1 46.33	2.48	+ 1.30	+ 36 10 1.5	13.1	+ 3.3
g " . .	6	3 19.4	23 19.4	1 46.33	3.47	+ 2.22	+ 45 34 21.4	3.4	+ 5.2
	7	7 3.3	27 3.3	1 46.32	3.39	+ 1.93	+ 44 52 50.0	4.1	+ 5.1
ρ " . .	6	7 43.0	27 43.0	1 46.31	3.35	+ 1.84	+ 44 37 23.0	4.4	+ 5.0
	7	9 41.3	29 41.3	1 46.31	3.33	+ 1.77	+ 44 23 37.8	4.6	+ 5.0
	8	13 24.5	33 24.5	1 46.31	3.21	+ 1.58	+ 43 26 21.8	5.5	+ 4.8
	7	15 44.2	35 44.2	1 46.31	3.37	+ 1.89	+ 44 45 57.6	4.2	+ 5.1
	7.8	18 5.3	38 5.3	1 46.30	3.50	+ 2.33	+ 45 51 8.8	3.1	+ 5.3
π " . .	6.5	20 39.5	40 39.5	1 46.29	3.81	+ 3.09	+ 48 17 35.3	0.6	+ 5.5
	7	24 0.7	44 0.7	1 46.29	2.70	+ 1.27	+ 38 30 42.8	10.6	+ 3.8
	7.8	27 59.3	47 59.3	1 46.28	2.39	+ 1.32	+ 35 6 44.9	14.3	+ 3.1
	7.8	22 30 38.3	21 50 38.3	1 46.28	3.72	+ 2.91	+ 47 37 24.2	1.3	+ 5.5
54 Piscium .	6	1 10 1.5	0 30 1.5	1 45.98	1.24	− 1.22	+ 20 4 21.2	32.2	− 1.1
55 " . .	6	10 27.0	30 27.0	1 45.98	1.25	− 1.22	+ 20 14 27.9	32.0	− 1.0
	6.7	13 28.5	33 28.5	1 45.98	0.94	− 1.53	+ 15 28 18.2	38.6	− 1.9
58 " . .	6	17 39.7	37 39.7	1 45.97	0.65	− 2.77	+ 10 47 8.4	45.9	− 1.9
δ " . .	4	19 20.8	39 20.8	1 45.96	0.38	− 1.02	+ 6 24 7.8	53.6	− 1.5
	8.9	22 11.1	42 11.1	1 45.96	0.70	− 2.98	+ 11 35 56.0	44.7	− 2.0
a) 66 " . .	6	25 3.1	45 3.1	1 45.95	1.10	− 1.39	+ 18 0 14.3	35.0	− 1.5
	6	27 34.2	47 34.2	1 45.95	1.39	− 0.98	+ 22 14 12.6	29.4	− 0.4
	9	30 27.5	50 27.5	1 45.95	2.52	+ 1.29	+ 36 36 15.6	12.7	+ 3.4
	6.7	32 53.7	52 53.7	1 45.94	2.01	+ 1.27	+ 30 37 33.7	19.4	+ 2.1
	7	34 32.8	54 32.8	1 45.94	1.84	+ 0.78	+ 28 29 16.8	21.7	+ 1.4
	7	37 57.7	0 57 57.7	1 45.93	2.03	+ 1.29	+ 30 50 20.6	19.1	+ 2.2
	6.5	41 5.8	1 1 5.8	1 45.93	1.98	+ 1.22	+ 30 15 20.4	19.7	+ 2.0
87 " . .	6	44	4				+ 14 58 37.0	39.4	− 1.9
	9	47 5.1	7 5.1	1 45.92	1.23	− 1.24	+ 19 54 1.6	32.5	− 1.1
90 υ " . .	6	49 29.8	9 29.8	1 45.91	1.66	− 0.07	+ 26 6 37.0	24.6	+ 0.7
91 " . .	6	51	11				+ 27 35 27.0	22.8	+ 1.2
b) ρ " . .	6	56 30.8	16 30.8	1 45.90	1.11	− 1.38	+ 18 12 1.0	34.8	− 1.5
c)	6	56 56.1	16 56.1	1 45.90	1.11	− 1.38	+ 18 6 23.4	34.8	− 1.5
96 " . .	7	1 59 39.0	19 39.0	1 45.90	0.37	− 0.97	+ 6 10 13.8	53.9	− 1.5
53 Mayer . .	9	2 2 10.6	22 10.6	1 45.89	0.59	− 2.13	+ 9 45 51.0	47.6	− 1.8
	7	5 2.0	25 2.0	1 45.88	1.06	− 1.42	+ 17 20 31.7	36.0	− 1.6
π Piscium .	6	7 33.8	27 33.8	1 45.88	0.66	− 2.88	+ 11 1 23.0	45.5	− 1.9
	7	8 6.7	28 6.7	1 45.88	0.66	− 2.86	+ 10 57 47.0	45.7	− 1.9
	7	10	30				+ 15 17 43.0	38.9	− 1.9
106 ν " . .	5	12 3.0	32 3.0	1 45.87	0.26	− 0.53	+ 4 23 7.9	57.3	− 1.3
	8	15 2.3	35 2.3	1 45.87	1.17	− 1.31	+ 18 59 15.4	33.7	− 1.3
d)	9	16 46.1	36 46.1	1 45.86	0.93	− 1.48	+ 16 18 54.0	37.5	− 1.9
	7	20 6.8	40 6.8	1 45.86	1.31	− 1.11	+ 21 11 2.4	30.8	− 0.8
γ Arietis . .	4	23 34.5	43 34.5	1 45.85	1.12	− 1.37	+ 18 13 16.0	34.7	− 1.5
Androm. .		25 14.5	45 14.5	1 45.85	1.48	+ 1.30	+ 36 10 1.0	13.2	+ 3.3
e)	6	29 30.6	49 30.6	1 45.85	1.24	− 1.23	+ 19 59 23.5	32.4	− 1.1
11 Arietis . .	7	33 17.8	53 17.8	1 45.83	1.58	− 0.41	+ 24 52 24.5	26.1	+ 0.4
58 Androm. .	6	37 22.6	57 22.6	1 45.83	2.54	+ 1.29	+ 36 48 24.1	12.5	+ 3.5
59 " . .	7.8	39 42.2	1 59 42.2	1 45.83	2.66	+ 1.27	+ 37 59 28.8	11.2	+ 3.7
f)	11	42 49.2	2 2 49.2	1 45.82	1.19	− 1.29	+ 18 47 14.0	33.3	− 1.3
	9	43 46.7	3 46.7	1 45.81	1.14	− 1.33	+ 18 35 3.0	34.3	− 1.4
	7.8	46 52.2	6 52.2	1 45.81	1.43	− 0.89	+ 22 44 50.4	28.7	− 0.3
	6.7	51 19.7	11 19.7	1 45.80	2.89	+ 1.33	+ 40 23 6.2	8.8	+ 4.2
d Trianguli .	6	56 34.0	16 34.0	1 45.79	2.03	+ 1.28	+ 30 48 20.1	19.2	+ 2.1
	7	2 59 11.4	19 11.4	1 45.78	2.19	+ 1.40	+ 32 50 45.8	16.9	+ 2.7
	7.8	3 1 44.8	21 44.8	1 45.78	2.25	+ 1.40	+ 33 33 44.2	16.0	+ 2.8
15 " . .	6.7	4 34.7	24 34.7	1 45.78	2.27	+ 1.39	+ 33 42 59.6	15.9	+ 2.8
	7.8	4 38.4	24 38.4	1 45.78	2.27	+ 1.39	+ 33 45 11.0	15.9	+ 2.9
	8.9	3 7 37.8	2 27 37.8	− 1 45.77	− 2.16	+ 1.39	+ 32 27 18.6	− 0 17.3	+ 2.6

a T. I assumed as 39s.; not 29s.
b T. III assumed as 56m. 55s.; not 57m. 5s.: and ζ as 30° 49′; not 30° 44′.
c T. II assumed as 56m. 56s.; not 57m. 6s.
d ζ assumed as 32° 32′ 11″; not 33° 32′ 11″.
e Minute of Transit assumed as 29.
f ζ assumed as 30° 3′; not 29° 33′.

1784 OCTOBER 15—Continued Zero corr. = + 1′ 40″.6.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
Persei . .	6	3 10 32.8	2 30 32.8	− 1 45.76	− 2.78	+ 1.28	+ 39 14 52.3	− 0 9.9	+ 3.9
37 ο Arietis . .	6	14 10.0	34 10.0	1 45.76	1.03	− 1.44	+ 16 49 46.8	36.7	− 1.7
	9.10	17 10.1	37 10.1	1 45.75	1.13	− 1.34	+ 18 27 19.0	34.6	− 1.4
	3	19 10.2	39 10.2	1 45.75	1.68	− 0.02	+ 26 20 43.3	24.4	+ 0.8
	6	21 28.0	41 28.0	1 45.74	1.86	− 1.63	+ 14 10 21.7	40.6	− 2.0
	7	23 4.1	43 4.1	1 45.74	0.95	− 1.52	+ 15 34 55.0	38.5	− 1.8
52 Arietis . .	6.7	25 34.2	45 34.2	1 45.74	1.07	− 1.41	+ 17 26 8.0	35.9	− 1.6
	6	27 36.9	47 36.9	1 45.74	0.21	− 0.38	+ 3 36 54.6	59.1	− 1.3
λ " . .	6	30 0.8	50 0.8	1 45.73	0.48	− 1.37	+ 8 1 47.2	50.7	− 1.7
α Ceti . .	2	32 50.5	52 50.5	1 45.73	0.19	− 0.32	+ 3 13 48.4	59.9	− 1.2
β Persei . .	2.3	36 2.7	56 2.7	1 45.72	2.86	+ 1.32	+ 40 5 21.4	9.1	+ 4.1
55 Arietis . .	7	38 30.4	2 58 30.4	1 45.71	− 1.82	+ 0.67	+ 28 13 26.0	0 22.2	+ 1.4
a) α Fornacis .	3	44 36.8	3 4 36.8	1 45.70	+ 1.94	+ 4.79	− 29 47 4.2	4 43.0	− 5.3
	6	49 51.6	9 51.6	1 45.69	− 3.83	+ 3.12	+ 48 23 59.0	0 0.5	+ 5.5
α Persei . .	2.3	50 50.8	10 50.8	1 45.69	3.91	+ 3.26	+ 49 3 0.0	0.2	+ 5.6
	6	54 38.8	14 38.8	1 45.68	3.81	+ 3.09	+ 48 16 2.4	0.6	+ 5.5
	5	57 17.1	17 17.1	1 45.68	3.66	+ 2.80	+ 47 12 30.0	1.7	+ 5.4
b)	6	3 58 48.6	18 48.6	1 45.68	3.66	+ 2.81	+ 47 14 43.6	1.7	+ 5.4
	7	4 1 16.2	3 21 16.2	1 45.67	2.76	+ 1.28	+ 39 8 6.0	10.1	+ 3.9
	7	5 34 40.6	4 54 40.6	1 45.50	1.20	− 1.28	+ 19 28 46.0	33.1	− 1.2
	6	36 49.5	4 56 49.5	1 45.50	1.51	− 0.67	+ 23 56 45.7	27.4	0.0
Capella .	1	42 37.5	5 2 37.5	1 45.49	− 3.48	+ 2.28	+ 45 43 44.3	0 3.1	+ 5.2
Rigel . .	1	45 56.5	5 56.5	1 45.48	+ 0.50	+ 1.87	− 8 27 36.1	1 31.5	− 0.5
	6.7	49 33.1	9 33.1	1 45.47	− 2.93	+ 1.35	+ 40 46 14.5	0 8.4	+ 4.3
σ Aurigæ .	5.6	51 50.6	11 50.6	1 45.47	2.57	+ 1.27	+ 37 8 29.0	12.2	+ 3.5
β Tauri . .	2	54 30.0	14 30.0	1 45.46	1.84	+ 0.74	+ 28 23 13.3	22.1	+ 1.4
	7	5 57 13.2	17 13.2	1 45.46	− 0.95	− 1.51	+ 15 39 47.6	0 36.5	− 1.8
	6.5	6 0 34.5	20 34.5	1 45.45	+ 0.07	+ 0.83	− 1 16 44.0	1 10.2	− 0.7
δ Orionis .	2	2 46.9	22 46.9	1 45.45	+ 0.02	+ 0.52	− 0 28 35.4	1 8.5	− 0.7
122 Tauri . .	7	6 23.3	26 23.3	1 45.44	− 1.03	− 1.44	+ 16 52 37.5	0 36.8	− 1.7
125 " . .	6.7	8 12.4	28 12.4	1 45.44	1.64	− 0.18	+ 25 44 25.4	25.2	+ 0.6
		14 19.8	34 19.8	1 45.43	0.97	− 1.49	+ 15 57 43.6	38.1	− 1.8
		16 42.0	36 42.0	1 45.42	1.08	− 1.41	+ 17 37 3.0	35.7	− 1.6
134 " . .	6	19 16.8	39 16.8	1 45.42	0.76	− 1.97	+ 12 33 16.7	43.4	− 2.0
137 " . .	6	21 57.7	41 57.7	1 45.41	0.85	− 1.64	+ 14 5 17.6	40.8	− 2.0
β Aurigæ .	2	25 32.8	45 32.8	1 45.41	3.39	+ 1.93	+ 44 52 30.8	4.1	+ 5.1
c) 140 Tauri . .	7.8	29 14.3	49 14.3	1 45.40	1.44	− 0.88	+ 22 51 11.8	28.8	− 0.2
H Geminorum	5	32 50.9	52 50.9	1 45.39	1.46	− 0.81	+ 23 14 22.0	28.3	− 0.2
	7.8	35 29.6	55 29.6	1 45.39	1.49	− 0.74	+ 23 37 21.0	27.8	− 0.1
	7.6	38 22.6	5 58 22.6	1 45.38	1.39	− 0.99	+ 22 11 22.2	29.6	− 0.5
	6	41 4.6	6 1 4.6	1 45.38	1.44	− 0.87	+ 22 55 17.1	28.6	− 0.2
η " . .	4.5	43 41.7	3 41.7	1 45.37	1.41	− 0.93	+ 22 32 4.8	29.2	− 0.3
	7	49 28.1	9 28.1	1 45.36	1.32	− 1.12	+ 21 9 0.6	30.9	− 0.8
	7	50 10.6	10 10.6	1 45.36	1.32	− 1.12	+ 21 11 45.2	30.9	− 0.8
	6	54 16.0	14 16.0	1 45.35	1.47	− 0.78	+ 23 24 39.8	28.1	− 0.1
	6	56 57.6	16 57.6	1 45.35	1.28	− 1.18	+ 20 35 35.0	31.8	− 0.9
ν " . .	4	6 57 59.4	17 59.4	1 45.35	1.26	− 1.21	+ 20 18 53.7	32.1	− 1.0
	6	7 0 30.3	20 30.3	1 45.34	1.04	− 1.43	+ 17 3 29.1	36.6	− 1.7
49 Aurigæ .	5.6	3 25.8	23 25.8	1 45.34	1.82	+ 0.65	+ 28 9 5.2	22.3	+ 1.3
63 " . .	6	6 30.5	26 30.5	1 45.33	1.89	+ 1.03	+ 29 7 48.2	21.2	+ 1.6
	6	10 45.2	30 45.2	1 45.32	− 1.01	− 1.46	+ 16 34 2.3	0 37.2	− 1.7
Sirius . .	1	17 22.8	37 22.8	1 45.31	+ 1.00	+ 1.67	− 16 25 9.8	2 7.2	− 0.5
	6	24 17.8	44 17.8	1 45.30	− 0.81	− 1.72	+ 13 25 22.0	0 42.0	− 2.0
	6	27 18.5	47 18.5	1 45.30	1.68	− 0.02	+ 26 19 34.8	24.5	+ 0.8
	6	29 41.0	49 41.0	1 45.30	1.00	− 1.48	+ 16 20 40.4	37.7	− 1.8
	6.7	31 42.2	51 42.2	1 45.29	1.11	− 1.38	+ 18 1 45.2	35.2	− 1.5
	7	35 41.5	55 41.5	1 45.28	1.84	+ 0.78	+ 28 28 10.6	21.9	+ 1.4
τ Geminorum	4.5	39 12.5	6 59 12.5	1 45.27	2.01	+ 1.27	+ 30 33 28.7	19.5	+ 2.1
51 " . .	6.5	42 48.3	7 2 48.3	1 45.26	1.00	− 1.47	+ 16 29 35.4	37.5	− 1.8
δ " . .	3	49 3.5	9 3.5	1 45.25	1.40	− 0.96	+ 22 20 35.6	29.4	− 0.4
Uranus .		7 53 13.1	7 13 13.1	− 1 45.25	− 1.43	− 0.89	+ 22 49 53.0	− 0 28.9	− 0.3

a ζ assumed as 78° 38′ 7″; not 78° 38′ 17″.
b Transits over Ts. I and II assumed as recorded over Ts. II and III: and T. I assumed as 14s.; not 24s.: and Min. as 58; not 59.
c ζ assumed as 25° 59′ 55″; not 26° 0′ 5″: and Div. assumed as 27 11 11; not 27 11 12.

1784 OCTOBER 16 — Zero corr. = + 1′ 43″.3.

	Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	Sun		2 8 31.3	1 28 31.3				− 9 30 16.3	− 1 32.6	− 0.4
			2 10 42.7	1 30 42.7				− 8 58 0.8	30.7	− 0.4
	Venus		3 20 17.0	2 40 17.0				− 15 16 39.4	1 57.6	− 0.5
	α Lyræ	1	19 11 24.4	18 31 24.4	− 1 43.82	− 2.73	+ 1.27	+ 38 34 10.2	0 10.6	+ 3.8
a)		7	20 16 1.0	19 36 1.0	1 43.69	2.80	+ 1.28	+ 39 30 7.0	9.9	+ 3.9
		6	16 22.0	36 22.0	1 43.69	2.85	+ 1.29	+ 39 43 50.4	9.3	+ 4.0
		6	18 16.2	38 16.2	1 43.68	2.56	+ 1.29	+ 36 49 13.0	12.4	+ 3.5
	χ Cygni	5	19 59.5	39 59.5	1 43.68	2.23	+ 1.40	+ 33 12 53.6	16.3	+ 2.7
	α Aquilæ	1.2	22 2.8	42 2.8	1 43.68	0.50	− 1.44	+ 8 17 57.6	49.8	− 1.7
	12 Vulpeculæ	6	23 34.2	43 34.2	1 43.67	1.38	− 1.01	+ 22 3 20.8	29.4	− 0.5
		6	27 9.2	47 9.2	1 43.66	1.50	− 0.71	+ 23 44 49.2	27.4	0.0
		7.8	37 12.7	19 57 12.7	1 43.65	2.43	+ 1.32	+ 35 24 19.4	14.0	+ 3.2
	27 b Cygni	6	40 7.5	20 0 7.5	1 43.64	2.42	+ 1.32	+ 35 21 58.5	14.1	+ 3.2
	17 θ Sagittæ	7	42 13.5	2 13.5	1 43.64	1.27	− 1.21	+ 20 16 3.0	31.8	− 1.0
		7	43 21.5	3 21.5	1 43.63	1.28	− 1.19	+ 20 29 11.6	31.5	− 1.0
		6.7						+ 25 49 37.0	24.8	+ 0.7
		7.8	47 7.8	7 7.8	1 43.63	1.34	− 1.10	+ 21 18 46.0	30.5	− 0.7
			48 39.2	8 39.2	1 43.62	1.31	− 1.15	+ 20 55 50.0	31.0	− 0.8
			51 8.8	11 8.8	1 43.62	1.28	− 1.19	+ 20 31 53.0	31.5	− 0.9
			50 54.4	10 54.4	1 43.62	1.31	− 1.16	+ 20 50 30.0	31.0	− 0.8
	25 Vulpeculæ	6	54 34.2	14 34.2	1 43.61	1.50	− 0.71	+ 23 45 6.3	0 27.3	0.0
		7	57 8.0	17 8.0	1 43.61	0.13	− 0.14	+ 2 15 21.5	1 1.6	− 1.0
		8	20 59 47.3	19 47.3	1 43.60	1.46	− 0.84	+ 23 4 20.8	0 28.2	− 0.2
b)		7	21 3 7.5	23 7.5	1 43.59	1.24	− 1.24	+ 19 52 22.1	32.4	− 1.1
		7	4 31.4	24 31.4	1 43.59	1.59	− 0.36	+ 25 4 5.4	25.8	+ 0.4
	ζ Delphini	5	7 1.7	27 1.7	1 43.59	0.85	− 1.66	+ 13 55 37.4	40.9	− 2.0
		6	11 53.7	31 53.7	1 43.58	1.94	+ 1.10	+ 29 34 11.2	20.6	+ 1.8
	α Cygni	2	15 51.4	35 51.4	1 43.57	3.36	+ 1.79	+ 44 29 35.2	4.5	+ 5.0
		7	22 28.3	42 28.3	1 43.56	2.37	+ 1.35	+ 34 45 12.1	14.8	+ 3.0
		6.7	25 51.0	45 51.0	1 43.55	1.89	+ 0.91	+ 28 49 40.0	21.4	+ 1.5
		6	26 55.7	46 55.7	1 43.55	2.19	+ 1.39	+ 32 36 25.0	17.1	+ 2.6
		6	30 26.0	50 26.0	1 43.54	1.35	− 1.09	+ 21 29 6.5	30.4	− 0.7
		7	31 12.4	51 12.4	1 43.54	1.35	− 1.08	+ 21 30 21.0	30.4	− 0.6
		6	34 24.3	54 24.3	1 43.53	2.40	+ 1.33	+ 35 10 4.3	14.3	+ 3.1
		6.7	36 29.5	56 29.5	1 43.53	2.64	+ 1.27	+ 37 47 30.2	11.5	+ 3.7
c)		6.7	39 1.5	20 59 1.5	1 43.52	2.63	+ 1.27	+ 37 40 42.0	11.6	+ 3.6
		6	41 17.3	21 1 17.3	1 43.52	1.92	+ 1.07	+ 29 19 27.6	20.8	+ 1.7
		8	44 23.3	4 23.3	1 43.51	1.88	+ 0.91	+ 28 49 3.0	21.4	+ 1.6
	ζ Cygni	5.4	45 32.4	5 32.4	1 43.51	1.92	+ 1.07	+ 29 19 56.7	20.8	+ 1.7
d)		7	46 44.7	6 44.7	1 43.51	1.82	+ 0.97	+ 28 59 56.8	21.1	+ 1.3
	66 υ "	6	50 50.2	10 50.2	1 43.50	2.30	+ 1.39	+ 33 58 46.2	15.6	+ 2.9
		7.8	52 33.4	12 33.4	1 43.50	2.61	+ 1.27	+ 37 18 49.0	12.0	+ 3.6
		7	54 4.1	14 4.1	1 43.49	2.11	+ 1.37	+ 31 41 6.2	18.1	+ 2.4
		7.8	56 25.8	16 25.8	1 43.49	2.52	+ 1.30	+ 36 28 4.0	12.9	+ 3.4
		7	56 51.3	16 51.3	1 43.49	2.52	+ 1.30	+ 36 24 51.8	12.9	+ 3.4
	69 "	7	21 58 45.6	18 45.6	1 43.48	2.46	+ 1.31	+ 35 43 25.5	13.7	+ 3.2
	70 "	6	22 0 21.5	20 21.5	1 43.48	2.50	+ 1.30	+ 36 9 57.0	13.2	+ 3.3
	g "	6.7	3 16.3	23 16.3	1 43.47	3.49	+ 2.22	+ 45 34 20.8	3.4	+ 5.2
		7	7 0.6	27 0.6	1 43.47	3.40	+ 1.93	+ 44 52 52.0	4.1	+ 5.1
		7	9 38.0	29 38.0	1 43.46	3.35	+ 1.77	+ 44 23 31.7	4.6	+ 5.0
		8	13 21.5	33 21.5	1 43.45	3.23	+ 1.58	+ 43 26 18.0	5.6	+ 4.8
		7.8	15 41.8	35 41.8	1 43.45	3.39	+ 1.89	+ 44 45 54.0	4.2	+ 5.1
		7.8	18 2.4	38 2.4	1 43.44	3.52	+ 2.33	+ 45 51 11.3	3.1	+ 5.3
		6	20 36.9	40 36.9	1 43.44	3.83	+ 3.09	+ 48 17 34.3	0.5	+ 5.5
		7	23 57.6	43 57.6	1 43.43	2.72	+ 1.27	+ 38 30 42.2	10.7	+ 3.8
		7.8	27 56.2	47 56.2	1 43.43	− 2.40	+ 1.33	+ 35 6 46.4	0 14.4	+ 3.1
	28 Aquarii	6	31	51				− 0 25 43.8	1 8.2	− 0.8
	α "	3	36 27.0	56 27.0	1 43.41	+ 0.08	+ 0.87	− 1 21 55.2	1 9.2	− 0.7
	35 "	6	38 51.1	21 58 51.1	1 43.40	1.22	+ 1.40	− 19 33 6.6	2 26.7	− 0.8
	38 e "	6						− 12 36 52.0	1 47.8	− 0.3
e)		8	43 37.6	22 3 37.6	1 43.39	0.73	+ 1.64	− 12 58 55.0	49.6	− 0.3
	Jupiter		44 32.5	4 32.5	1 43.39	0.81	+ 1.57	− 13 22 6.6	1 51 1	− 0.3
		7	22 53 27.7	22 13 27.7	− 1 43.37	+ 0.98	+ 1.65	− 16 0 59.5	− 2 4.5	− 0.5

a ζ assumed as 9° 20′; not 9° 35′.
b ζ assumed as 28° 58′ 41″; not 28° 58′ 51″.
c Ts. I and II assumed as 39m.; not 38m.
d ζ assumed as 19°; not 10°.
e ζ assumed as 61°; not 60°.

1784 OCTOBER 16—Continued Zero corr. = + 1′ 43″. 3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
50 Aquarii	6	22 54 36.7	22 14 36.7	— 1 43.37	+ 0.89	+ 1.59	— 14 36 31.2	— 1 57.0	— 0.5
	6	23 0 56.8	20 56.8	1 43.36	0.71	+ 1.66	— 11 46 18.6	44.1	— 0.3
	7	4 27.5	24 27.5	1 43.38	0.65	+ 1.74	— 10 42 41.8	39.7	— 0.3
63 " . .	6.5	23 8 18.6	22 28 18.6	— 1 43.34	+ 0.32	+ 1.78	— 5 20 9.3	— 1 21.2	— 0.5

a) **1784 NOVEMBER 17** Zero corr. = + 1′ 43″. 0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ—φ	Refr.	q′
α Aquilæ .	1.2	20 21 12.5	19 41 12.5	— 0 53.78	— 0.56	— 1.44	+ 8 17 55.8	— 0 49.2	— 1.7
66 " . .	5.6	42 59.5	20 2 59.5	53.75	+ 0.11	+ 0.95	— 1 38 59.9	1 9.7	— 0.7
	7	20 58 20.1	18 20.1	53.73	— 0.15	— 0.12	+ 2 13 35.2	1 0.9	— 1.0
ω Cygni . .	5	21 1 21.5	21 21.5	53.72	4.37	+ 3.17	+ 48 39 3.0	0 0.2	+ 5.6
	6	3 52.6	23 52.6	53.72	0.72	— 2.67	+ 10 34 4.4	45.4	— 1.9
	6.7	7 46.6	27 46.6	53.71	3.98	+ 2.37	+ 45 56 14.7	2.9	+ 5.3
	7.8	10 39.8	30 39.8	53.71	0.86	— 1.90	+ 12 39 23.0	42.2	— 2.0
	6	13 1.5	33 1.5	53.71	1.16	— 1.45	+ 16 44 41.2	36.1	— 1.7
	6	16 28.2	36 28.2	53.70	4.53	+ 3.34	+ 49 32 54.0	0.7	+ 5.7
	8	20 18.6	40 18.6	53.70	3.94	+ 2.28	+ 45 43 32.7	3.2	+ 5.2
	6	23 15.3	43 15.3	53.69	2.00	+ 0.36	+ 27 26 0.9	22.6	+ 1.1
32 Vulpeculæ	5	26 18.7	46 18.7	53.69	1.98	+ 0.28	+ 27 13 44.3	22.9	+ 1.0
	6.7	29 14.2	49 14.2	53.68	0.23	— 0.36	+ 3 28 4.0	58.2	— 1.2
61 Cygni . .	6	38 11.3	20 58 11.3	53.67	2.98	+ 1.27	+ 37 40 46.2	0 11.4	+ 3.6
	9.10	42 46.8	21 2 46.8	53.67	— 0.11	— 0.06	+ 1 45 35.6	1 1.9	— 1.0
	7	46 24.3	6 24.3	53.66	+ 0.17	+ 1 20	— 2 30 7.8	1 11.7	— 0.7
67 " . .	6	49 53.9	9 53.9	53.66	— 3.06	+ 1.27	+ 38 28 42.0	0 10.5	+ 3.8
	7	53 33.2	13 33.2	53.65	3.16	+ 1.29	+ 39 25 47.3	9.6	+ 4.0
	7	56 5.1	16 5.1	53.65	2.22	+ 1.19	+ 29 59 57.4	19.6	+ 1.9
	7.8	21 59 44.1	19 44.1	53.64	0.75	— 2 87	+ 11 0 39.0	44.7	— 1.9
	6.7	22 1 42.7	21 42.7	53.64	0.76	— 2.96	+ 11 11 12.8	44.5	— 1.9
	7	5 37.3	25 37.3	53.64	1.21	— 1.41	+ 17 21 47.2	35.3	— 1.6
	7	10 59.0	30 59.0	53.63	0.66	— 2.03	+ 9 37 56.0	47.0	— 1.8
	6	12 58.7	32 58.7	53.63	0.67	— 2.18	+ 9 50 15.1	46.7	— 1.8
	7	17 20.2	37 20.2	53.62	0.87	+ 1.84	+ 12 43 7.8	42.1	+ 2.0
	7	21 51.5	41 51.5	53.61	3.24	+ 1.32	+ 40 7 46.0	8.9	+ 4.1
	7	25 14.1	45 14.1	53.61	1.99	+ 0.32	+ 27 19 11.8	22.7	+ 1.1
	8.9	28 30.0	48 30.0	53.61	1.34	— 1.29	+ 19 16 5.9	32.7	— 1.3
	6.7	31 55.4	51 55.4	53.60	2.40	+ 1.38	+ 31 57 19.0	17.6	+ 2.5
	7	35 12.5	55 12.5	53.60	3.67	+ 1.60	+ 43 35 37.2	5.3	+ 4.8
b)	8	37 49.2	21 57 49.2	53.59	0.58	— 1.52	+ 8 36 48.0	48.5	— 1.8
	6.7	41 1.1	22 1 1.1	53.59	1.29	— 1.34	+ 18 33 17.0	33.7	— 1.4
	7	45 37.9	5 37.9	53.58	1.51	— 1.09	+ 21 26 39.0	29.9	— 0.7
	7.8	47 30.2	7 30.2	53.58	1.54	— 1.04	+ 21 48 47.2	29.4	— 0.6
	6	51 57.3	11 57.3	53.57	1.87	— 0.16	+ 25 50 22.6	24.4	+ 0.7
33 Pegasi . .	6	54 15.7	14 15.7	53.57	1.38	— 1.25	+ 19 44 59.5	32.0	— 1.2
	6	56 15.4	16 15.4	53.57	1.21	— 1.42	+ 17 20 22.6	35.3	— 1.6
	7	22 59 2.2	19 2.2	53.56	1.69	— 0.73	+ 23 40 55.6	27.0	— 0.1
	6.7	23 2 32.2	22 22 32.2	53.56	2.09	+ 0.76	+ 28 25 36.3	21.4	+ 1.4
	5.6	2 7 28.5	1 27 28.5	53.31	3.62	+ 1.55	+ 43 15 40.4	5.5	+ 4.7
	6	10 37.7	30 37.7	53.31	2.60	+ 1.38	+ 34 7 58.7	15.2	+ 2.9
	8	19 15.7	39 15.7	53.30	1.49	— 1.11	+ 21 10 59.7	30.4	— 0.8
	9	24 13.6	44 13.6	53.29	— 0.87	— 1.88	+ 12 40 45.3	0 42.4	— 2.0
c)	7	27 58.2	47 58.2	53.29	+ 0.20	+ 1.36	— 3 7 17.3	1 14.0	— 0.7
		30 32.6	50 32.6	53.28	— 1.58	— 0.96	+ 22 19 52.7	0 28.9	— 0.4
15 Arietis .	6.5	38 9.9	1 58 9.9	53.27	1.80	— 0.41	+ 24 53 45.6	25.8	+ 0.4
	7	42 55.5	2 2 55.5	53.27	1.30	— 1.34	+ 18 35 0.3	33.9	— 1.4
	7	46 0.6	6 0.6	53.26	1.61	— 0.90	+ 22 44 48.2	28.4	— 0.3
	7	48 28.7	8 28.7	53.26	2.15	+ 1.05	+ 29 10 21.3	20.8	+ 1.6
	7	54 32.7	14 32.7	53.25	1.72	— 0.61	+ 24 9 35.0	26.6	0.0
	6.7	57 10.2	17 10.2	53.25	2.13	+ 0.95	+ 28 56 5.8	21.1	+ 1.6
14 Trianguli .	5.6	2 59 58.5	19 58.5	53.24	2.72	+ 1.33	+ 35 9 43.4	14.1	+ 3.1
	6	3 3 23.7	23 23.7	53.24	2.83	+ 1.30	+ 36 20 20.1	12.9	+ 3.4
	7	6 7.1	26 7.1	53.24	2.91	+ 1.27	+ 37 7 28.0	12.1	+ 3.5
q Persei . .	6	3 9 41.5	2 29 41.5	— 0 53.23	— 3.15	+ 1.28	+ 39 14 59.8	— 0 9.8	+ 3.9

a On page 646, this date is wrongly called November 15.

b T. II assumed as 49s.; not 39s.

c T. II assumed as 58s.; not 18s.

Name	Mag.	T	App. sid. time	Clock corr.	$s \tan \delta$	q	$\zeta - \phi$	Refr.	q'
1784 NOVEMBER 23									Zero corr. = + 1′ 40″.6.
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	6.7	21 37 47.5	20 57 47.5	— 0 42.70	— 1.84	— 0.10	+ 26 3 11.3	— 0 24.9	+ 0.7
ζ Cygni . .	5.6	44 30.8	21 4 30.8	42.69	2.10	+ 1.07	+ 29 19 57.7	20.9	+ 1.7
a) 67 " . .	6	49 42.0	9 42.0	42.69	2.98	+ 1.27	+ 38 28 43.6	10.8	+ 3.8
	7	21 55 53.4	15 53.4	42.68	— 2.17	+ 1.19	+ 29 59 58.0	0 20.1	+ 1.9
β Aquarii .	3	22 0 54.2	20 54.2	42.68	+ 0.42	+ 1.86	— 6 30 43.6	1 25.2	— 0.5
	6	3 25.4	23 25.4	42.67	1.44	+ 1.48	— 21 1 4.4	2 39.4	— 1.0
ε Capricorni	4	5 41.0	25 41.0	42.67	1.40	+ 1.44	— 20 24 19.0	2 34.3	— 0.9
λ " . .	5	15 36.7	35 36.7	42.66	0.82	+ 1.62	— 12 20 38.7	1 47.1	— 0.3
	6.7	37 43.8	57 43.8	42.63	0.84	+ 1.60	— 12 39 19.5	1 48.3	— 0.3
	6	39 47.4	21 59 47.4	42.63	+ 0.84	+ 1.61	— 12 36 43.2	1 48.0	— 0.3
	7	45 26.9	22 5 26.9	42.62	— 1.47	— 1.09	+ 21 26 46.4	0 30.7	— 0.7
	7.8	47 47.3	7 47.3	42.62	— 1.46	— 1.10	+ 21 18 20.0	0 30.9	— 0.7
Jupiter .		49 17.4	9 17.4	42.62	+ 0.84	+ 1.60	— 12 43 30.2	1 48.9	— 0.3
33 Pegasi . .	6	54 4.8	14 4.8	42.61	— 1.35	— 1.25	+ 19 45 5.4	0 33.0	— 1.1
		56 4.3	16 4.3	42.61	1.17	— 1.42	+ 17 20 28.0	36.3	— 1.6
		22 58 50.8	18 50.8	42.61	1.64	— 0.73	+ 23 41 11.2	27.8	0.0
		23 9 13.4	29 13.4	42.60	1.24	— 1.35	+ 18 23 59.0	34.8	— 1.4
ζ Pegasi . .	3	11 29.4	31 29.4	42.59	0.64	— 2.08	+ 9 42 3.0	48.2	— 1.8
η " . .	3	13 40.4	33 40.4	42.59	2.08	+ 1.01	+ 29 4 59.0	21.3	+ 1.6
λ " . .	4	23 16 56.4	22 36 56.4	— 0 42.59	— 1.54	— 0.95	+ 22 25 19.0	— 0 29.4	— 0.4
1784 NOVEMBER 28									Zero corr. = + 1′ 40″.0.
α Lyræ . .	1	19 10 15.5	18 30 15.5	— 0 35.47	— 2.83	+ 1.27	+ 38 34 5.8	— 0 10.6	+ 3.8
α Aquilæ .	1.2	20 20 54.2	19 40 54.2	35.40	0.52	— 1.44	+ 8 17 55.2	50.4	— 1.7
β " . .	3.4	20 25 21.2	19 45 21.2	35.40	0.37	— 0.91	+ 5 52 12.1	54.9	— 1.5
α Cygni . .	2	21 14 42.1	20 34 42.1	35.35	3.48	+ 1.79	+ 44 29 41.8	4.5	+ 5.0
ε " . .	3	18 6.8	38 6.8	35.35	2.32	+ 1.40	+ 33 9 10.7	16.6	+ 2.7
3 Equulei .	6	34 28.1	54 28.1	35.33	0.29	— 0.58	+ 4 38 51.6	57.2	— 1.4
61 Cygni . .	6	37 52.6	20 57 52.6	35.32	2.74	+ 1.27	+ 37 40 47.0	11.6	+ 3.6
	7	43 1.5	21 3 1.5	35.32	2.53	+ 1.32	+ 35 24 28.0	14.1	+ 3.2
	7	44 47.9	4 47.9	35.32	2.48	+ 1.34	+ 34 54 1.6	14.7	+ 3.1
	7.6	45	5				+ 35 43 57.0	13.7	+ 3.2
	6.7	48 56.8	8 56.8	35.32	3.12	+ 1.38	+ 41 20 15.6	7.8	+ 4.4
67 " . .	6	48	8				+ 38 28 43.6	10.7	+ 3.8
	8	51 30.2	11 30.2	35.31	0.58	— 1.86	+ 9 25 0.4	48.4	— 1.8
	7	55 46.2	15 46.2	35.31	2.05	+ 1.19	+ 30 0 0.0	20.1	+ 1.9
35 Vulpeculæ	6	21 58 48.7	18 48.7	35.30	1.78	+ 0.08	+ 26 39 42.0	24.0	+ 0.9
	7	22 5 51.1	25 51.1	35.30	3.53	+ 1.93	+ 44 52 56.0	4.1	+ 5.1
ρ Cygni . .	4	6 30.2	26 30.2	35.30	3.50	+ 1.84	+ 44 37 24.0	4.4	+ 5.0
	8.9	10 41.1	30 41.1	35.30	3.24	+ 1.45	+ 42 18 15.0	6.9	+ 4.6
	6.7	22 12 22.0	21 32 22.0	— 0 35.29	— 3.23	+ 1.45	+ 42 16 50.8	— 0 6.9	+ 4.6
1784 DECEMBER 28									Zero corr. = + 1′ 40″.2.
α Lyræ . .	1	19 9 53.7	18 29 53.7	— 0 14.31	— 2.55	+ 1.27	+ 38 33 55.4	— 0 10.7	+ 3.8
Sun . .		11 41.4	31 41.4	14.30	+ 1.39	+ 2.02	— 23 30 24.4	3 2.9	— 1.7
		19 14 5.3	18 34 5.3	14.30	+ 1.36	+ 1.86	— 22 57 47.9	2 57.5	— 1.5
62 Pegasi . .	6	23 50 16.1	23 10 16.1	14.16	— 1.33	— 0.92	+ 22 32 53.1	0 29.8	— 0.3
θ Piscium .	5	23 57 18.9	17 18.9	14.16	— 0.29	— 0.72	+ 5 11 20.0	0 57.3	— 1.4
b)	7	0 1 8.0	21 8.0	14.16	+ 0.13	+ 1.15	— 2 16 37.6	1 14.5	— 0.7
	7	5 26.7	25 26.7	14.16	— 1.38	— 0.79	+ 23 21 25.9	0 28.7	— 0.1
	7.8	9 34.2	29 34.2	14.16	0.20	— 0.38	+ 3 36 19.8	1 0.4	— 1.3
	7	14 53.3	34 53.3	14.15	1.12	— 1.30	+ 19 12 28.4	0 34.3	— 1.3
	7	19 13.7	39 13.7	14.15	1.59	+ 0.02	+ 26 28 12.0	24.8	+ 0.8
23 " . .	6	0 21 46.0	23 41 46.0	— 0 14.15	— 1.19	— 1.20	+ 20 27 39.4	— 0 32.5	— 1.0

a T. III assumed as 11s.; not 21s.

b ζ assumed as 51° 7′; not 51° 17′.

1785 MARCH 14 Zero corr. = + 1′ 39″.0.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
Sun . .		0 17 52.1	23 37 52.1				− 1 59 18.9	− 1 11.9	− 0.7
		20 2.6	23 40 2.6						
ε Orionis .	2						− 1 21 43.0	11.7	− 0.7
ζ " . .	2	6 9 38.6	5 29 38.6	+ 0 16.46	+ 0.13	+ 1.08	− 2 4 42.1	1 13.5	− 0.7
		15 54.2	35 54.2	16.47	− 1.87	+ 0.39	+ 27 31 28.2	0 23.4	+ 1.2
		21 26.5	41 26.5	16.48	1.32	− 1.22	+ 20 12 8.8	32.7	− 1.1
β Aurigæ .	2	23 33.1	43 33.1	16.48	3.59	+ 1.93	+ 44 52 48.2	4.2	+ 5.1
							+ 47 50 29.0	1.0	+ 5.5
		27 35.4	47 35.4	16.49	3.34	+ 1.50	+ 42 52 25.7	6.3	+ 4.7
		29 23.1	49 23.1	16.49	3.35	+ 1.52	+ 42 57 12.2	6.2	+ 4.7
H Geminorum	5						+ 23 14 22.4	28.7	− 0.2
235 Mayer . .	7.8	36 22.7	56 22.7	16.50	1.46	− 0.99	+ 22 11 21.7	30.1	− 0.5
3 Geminorum	8	36	56				+ 23 6 48.4	28.8	− 0.2
	7	38 43.2	5 58 43.2	16.51	1.45	− 1.02	+ 21 52 50.4	30.6	− 0.5
η " . .	4	41 41.6	6 1 41.6	16.51	1.49	− 0.93	+ 22 32 7.4	29.6	− 0.3
	6	47 36.4	7 36.4	16.52	0.94	− 1.59	+ 14 42 40.0	40.6	− 1.9
μ " . .	5	49 44.7	9 44.7	16.52	0.50	− 0.92	+ 22 35 21.2	29.6	− 0.3
	7.8	52 15.8	12 15.8	16.52	1.56	− 0.78	+ 23 24 39.0	28.5	− 0.1
	7	54 45.5	14 45.5	16.53	1.37	− 1.15	+ 20 53 17.6	31.8	− 0.8
	7	6 59 33.6	19 33.6	16.54	1.16	− 1.39	+ 17 54 11.2	36.0	− 1.5
	7	7 3 22.3	23 22.3	16.54	− 1.10	− 1.44	+ 16 56 21.1	37.3	− 1.7
γ " . .	5						+ 16 33 4.4	0 37.8	− 1.7
Sirius . .	1	15 22.5	35 22.5	16.56	+ 1.06	+ 1.67	− 16 25 38.8	2 9.2	− 0.5
θ Geminorum	4	18 23.2	38 23.2	16.57	− 2.45	+ 1.38	+ 34 10 54.2	0 15.7	+ 2.9
	7	27 42.0	47 42.0	16.58	1.06	− 1.48	+ 16 20 36.6	38.2	− 1.8
42 ω " . .	6	29 5.7	49 5.7	16.58	1.64	− 0.53	+ 24 29 14.3	27.1	+ 0.2
	7	32 9.8	52 9.8	16.59	1.52	− 0.86	+ 22 55 30.6	29.1	− 0.2
Uranus .	7	33 34.0	53 34.0	16.59	1.55	− 0.80	+ 23 17 49.0	28.6	− 0.2
	7	37 49.2	6 57 49.2	16.59	1.85	+ 0.27	+ 27 10 24.6	23.8	+ 1.0
m Geminorum							+ 24 27 12.0	27.2	+ 0.2
64 Aurigæ .	5	42 51.3	7 2 51.3	16.60	3.15	+ 1.37	+ 41 13 20.0	8.1	+ 4.3
δ Geminorum		47 4.5	7 4.5	16.60	1.48	− 0.96	+ 22 20 37.6	29.9	− 0.4
	7.8	50 20.2	10 20.2	16.61	1.55	− 0.80	+ 23 19 27.1	28.6	− 0.1
a) ι " . .	4.5	52 7.9	12 7.9	16.62	1.93	+ 0.66	+ 28 11 20.1	22.6	+ 1.3
P " . .	6	54 45.3	14 45.3	16.62	1.44	− 1.03	+ 21 51 3.7	30.6	− 0.5
	7	7 57 34.0	17 34.0	16.63	0.44	− 1.14	+ 6 59 44.4	53.6	− 1.6
68 *k* " . .	6	8 1 7.5	21 7.5	16.63	1.05	− 1.48	+ 16 15 31.0	38.4	− 1.8
	7.8	4 59.5	24 59.5	16.64	1.67	− 0.43	+ 24 48 29.0	26.8	+ 0.3
	7.8	5 58.7	25 58.7	16.64	1.65	− 0.47	+ 24 40 37.0	26.9	+ 0.3
	7	7 52.9	27 52.9	16.64	1.56	− 0.77	+ 23 28 54.6	28.5	− 0.1
		10 21.5	30 21.5	16.65	1.52	− 0.88	+ 22 52 19.8	29.3	− 0.2
	7	8 12 19.4	7 32 19.4	16.65	1.37	− 1.17	+ 20 47 58.4	32.0	− 0.9
	7.8	9 10 41.2	8 30 41.2	16.73	2.32	+ 1.40	+ 32 47 57.6	17.3	+ 2.7
11 ε Hydræ .	4	9 15 9.1	8 35 9.1	+ 0 16.74	− 0.45	− 1.19	+ 7 10 54.3	− 0 53.2	− 1.6

1785 MARCH 19 Zero corr. = + 1′ 34″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
ζ Orionis .	2	6 9 27.2	5 29 27.2	+ 0 27.69	+ 0.13	+ 1.08	− 2 4 39.1	− 1 13.5	− 0.7
32 ν Aurigæ .	5	16 11.7	36 11.7	27.70	− 2.92	+ 1.28	+ 39 2 41.2	0 10.4	+ 3.9
		21 15.8	41 15.8	27.71	1.33	− 1.22	+ 20 12 9.8	32.6	− 1.1
H Geminorum	5	30 39.6	5 50 39.6	27.72	− 1.55	− 0.81	+ 23 14 25.6	28.8	− 0.2
b) 67 ν Orionis .	4.5						+ 14 42 37.0	0 40.6	− 1.9
ζ Canis Maj.	3	51 31.2	6 11 31.2	27.75	+ 2.07	+ 4.83	− 29 55 35.8	4 52.3	− 5.5
υ Geminorum	4	55 48.5	15 48.5	27.75	− 1.34	− 1.21	+ 20 18 52.0	0 32.6	− 1.0
	7	6 59 21.9	19 21.9	27.76	1.17	− 1.40	+ 17 53 53.6	36.0	− 1.5
258 Mayer . .	6.7	7 2 6.6	22 6.6	27.76	1.06	− 1.47	+ 16 20 28.0	38.2	− 1.8
γ Geminorum	2.3	4 53.8	24 53.8	27.77	1.08	− 1.47	+ 16 33 1.4	38.0	− 1.7
55 Aurigæ .	5	7 2.1	27 2.1	27.77	3.57	+ 1.86	+ 44 41 13.0	4.4	+ 5.0
	6	8 42.3	28 42.3	27.77	− 3.57	+ 1.86	+ 44 40 35.0	0 4.4	+ 5.0
Sirius . .	1	15 11.3	35 11.3	27.78	+ 1.06	+ 1.67	− 16 25 35.0	2 9.2	− 0.5
16 Lyncis .	6	21 30.6	41 30.6	27.78	− 3.64	+ 2.12	+ 45 19 45.0	0 3.7	+ 5.1
	7.8	7 24 48.1	6 44 48.1	+ 0 27.79	− 1.18	− 1.37	+ 18 9 11.4	− 0 35.5	− 1.5

a T. III assumed as 52m. 34s.; not 52m. 44s.   b Name not 67 ν Orionis.

1785 MARCH 19—Continued Zero corr. = + 1′ 34″.4.

	Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
			h m s	h m s	m s	s	s	° ′ ″	′ ″	″
a)		6.7	7 27 31.0	6 47 31.0	+ 0 27.79	− 1.06	− 1.48	+ 16 20 40.1	− 0 38.3	− 1.8
		6.7	29 45.5	49 45.5	27.79	1.09	− 1.43	+ 16 57 2.8	37.3	− 1.7
b)	ω² Geminorum	6.7	31 57.8	51 57.8	27.80	1.53	− 0.86	+ 22 55 38.0	29.2	− 0.2
	Herschel	6.7	33 19.2	53 19.2	27.80	1.55	− 0.80	+ 23 17 48.0	28.7	− 0.2
		7.8	38 36.1	6 58 36.1	27.81	1.01	− 1.51	+ 15 39 17.0	39.3	− 1.8
		6.7	40 54.6	7 0 54.6	27.81	1.68	− 0.37	+ 25 2 40.0	26.5	+ 0.4
c)	52 Geminorum	6.7	41 7.9	1 7.9	27.81	1.69	− 0.32	+ 25 13 25.0	26.3	+ 0.4
		7.8	43 17.9	3 17.9	27.82	1.67	− 0.41	+ 24 52 49.1	26.7	+ 0.4
	δ "	3	46 52.9	6 52.9	27.82	1.48	− 0.96	+ 22 20 42.0	29.9	− 0.4
	ι "	4.5	51 56.9	11 56.9	27.83	1.93	+ 0.66	+ 28 11 19.4	22.6	+ 1.3
		7	54 47.3	14 47.3	27.83	0.79	− 2.16	+ 12 21 23.8	44.4	− 2.0
		6	7 57 25.4	17 25.4	27.84	0.79	− 2.09	+ 12 25 19.6	44.3	− 2.0
		7	8 0 39.7	20 39.7	27.84	2.01	+ 1.02	+ 29 6 57.0	21.6	+ 1.6
		7.8	1 32.7	21 32.7	27.84	2.00	+ 1.01	+ 29 3 39.0	21.6	+ 1.6
		7	4 3.0	24 3.0	27.84	1.36	− 1.18	+ 20 36 33.6	32.2	− 0.9
		6	6 39.7	26 39.7	27.85	1.17	− 1.37	+ 18 7 56.5	35.6	− 1.5
			10 35.0	30 35.0	27.85	1.77	− 0.04	+ 26 15 43.0	25.0	+ 0.8
	β "	2	11 44.3	31 44.3	27.85	1.95	+ 0.79	+ 28 30 41.9	22.2	+ 1.5
	82 "	6	15 17.6	35 17.6	27.86	1.58	− 0.74	+ 23 38 26.3	28.2	0.0
			17 18.7	37 18.7	27.86	1.65	− 0.47	+ 24 40 15.0	26.9	+ 0.2
	Moon		20 25.4	40 25.4	27.86	1.58	− 0.73	+ 23 40 57.4	28.2	0.0
		7	26 46.6	46 46.6	27.87	2.06	+ 1.17	+ 29 49 59.0	20.8	+ 1.9
	5 Cancri	6	29	49				+ 17 1 0.0	37.2	− 1.7
	7 "	6.7	30 44.5	50 44.5	27.88	1.50	− 0.91	+ 22 38 28.0	29.6	− 0.3
	9 μ¹ "	5.6	33 9.4	53 9.4	27.88	1.54	− 0.82	+ 23 13 1.9	28.8	− 0.2
	11 "	6	35 14.8	55 14.8	27.88	1.92	+ 0.61	+ 28 4 16.4	22.9	+ 1.3
		7.8	37 20.8	7 57 20.8	27.89	1.15	− 1.41	+ 17 37 5.0	36.5	− 1.6
		7	40 32.2	8 0 32.2	27.89	1.58	− 0.72	+ 23 45 10.2	28.2	0.0
		7	45 55.5	5 55.5	27.90	1.67	− 0.44	+ 24 48 45.0	26.9	+ 0.3
	19 λ "	6	47	7 20.1	27.90	1.65	− 0.47	+ 24 39 58.2	27.0	+ 0.3
			53 27.6	13 27.6	27.91	1.69	− 0.33	+ 25 12 26.6	26.4	+ 0.4
		7	8 56 29.6	16 29.6	27.92	1.82	+ 0.15	+ 26 52 37.0	24.3	+ 1.0
	33 Lyncis	6	9 0 28.5	20 28.5	27.92	2.72	+ 1.27	+ 37 7 12.0	12.5	+ 3.5
		6	9 4 26.4	8 24 26.4	+ 0 27.92	− 2.38	+ 1.40	+ 33 30 57.6	− 0 16.5	+ 2.8

1785 MARCH 21 Zero corr. = + 1′ 38″.1.

	Name	Mag.	T	App. sid. time	Clock corr.	κ tan δ	q	ζ − φ	Refr.	q′
	Sun		0 43 8.3	0 3 8.3				+ 0 14 10.9	− 1 6.4	− 0.8
								+ 0 46 27.9	1 5.1	− 0.9
	α Tauri	1	5 3 9.0	4 23 9.0	+ 0 30.39	− 1.05	− 1.49	+ 16 2 48.7	0 38.1	− 1.8
	Capella	1	40 22.0	5 0 22.0	30.43	− 3.75	+ 2.28	+ 45 44 8.9	0 3.2	+ 5.2
	Rigel	1	43 41.0	3 41.0	30.43	+ 0.54	+ 1.87	− 8 27 59.8	1 31.9	− 0.5
d)	β Tauri	2	52 15.2	12 15.2	30.44	− 1.97	+ 0.73	+ 28 23 20.0	0 22.1	+ 1.4
	γ Orionis	2	5 53 8.5	13 8.5	30.44	− 0.39	− 0.96	+ 6 7 43.6	0 54.6	− 1.5
	δ "	2	6 0 31.7	20 31.7	30.45	+ 0.03	+ 0.53	− 0 28 51.2	1 8.8	− 0.8
	ε "	2	4 48.5	24 48.5	30.45	0.09	+ 0.86	− 1 21 41.6	10.7	− 0.7
	ζ "	2	9 24.7	29 24.7	30.46	+ 0.13	+ 1.09	− 2 4 38.6	1 12.7	− 0.7
	π Aurigæ	6	23 31.4	43 31.4	30.48	− 3.76	+ 2.33	+ 45 52 23.0	0 3.1	+ 5.3
	H Geminorum	5	30 36.6	5 50 36.6	30.48	1.56	− 0.81	+ 23 14 23.4	28.4	− 0.2
	κ Aurigæ	4.5	41 12.4	6 1 12.4	30.49	2.07	+ 1.10	+ 29 32 23.0	20.8	+ 1.8
	μ Geminorum	3	6 49 30.7	9 30.7	30.50	1.51	− 0.92	+ 22 35 19.2	0 29.2	− 0.3
	ζ Can. Maj.	3						− 29 55 45.8	4 48.4	− 5.5
	258 Mayer	7	7 1	21				+ 16 20 29.0	0 37.8	− 1.8
e)	50 Aurigæ	5.6	3 31.2	23 31.2	30.52	3.36	+ 1.48	+ 42 38 8.2	6.5	+ 4.6
	γ Geminorum	2.3	4 51.3	24 51.3	30.52	1.08	− 1.47	+ 16 33 2.6	37.5	− 1.7
	55 Aurigæ	5	6 58.3	26 58.3	30.52	3.61	+ 1.86	+ 44 41 13.6	4.3	+ 5.0
	56 "	6	10 46.9	30 46.9	30.52	3.49	+ 1.64	+ 43 44 53.9	5.3	+ 4.8
		6	14 40.3	34 40.3	30.53	2.81	+ 1.27	+ 37 42 40.0	11.7	+ 3.6
	58 "	4.5	15 5.8	35 5.8	30.53	3.29	+ 1.42	+ 41 59 30.0	7.1	+ 4.5
	59 "	6	17 46.5	37 46.5	30.53	2.97	+ 1.28	+ 39 5 1.7	10.2	+ 3.9
		6	20 9.8	40 9.8	30.53	3.85	+ 2.58	+ 46 30 7.2	2.4	+ 5.4
	16 Lyncis	6	7 21 27.2	6 41 27.2	+ 0 30.53	− 3.69	+ 2.13	+ 45 19 45.2	− 0 3.5	+ 5.1

a Div. assumed as 34 10 13; not 34 10 12.
b ζ assumed as 25° 55′ 27″; not 25° 55′ 7″.
c ζ assumed as 23° 37′ 40″; not 23° 38′ 0″.
d ζ assumed as 20° 27′; not 20° 28′.
e Transit over T. III assumed as recorded over T. II.

1785 MARCH 21—Continued Zero corr. = + 1′ 38″.1.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7.8	7 26 24.8	6 46 24.8	+ 0 30.54	— 1.87	+ 0.26	+ 27 8 14.5	— 0 23.7	+ 1.0
ω Geminorum	6	28 51.4	48 51.4	30.54	1.66	— 0.51	+ 24 29 10.3	26.9	+ 0.1
	7	30	50				+ 18 1 44.0	35.3	— 1.5
	5	30 54.4	50 54.4	30.54	1.41	— 1.16	+ 20 51 5.0	31.6	— 0.8
	7.8	33 27.3	53 27.3	30.54	1.98	+ 0.78	+ 28 28 13.4	22.0	+ 1.4
	8.9	35 9.2	55 9.2	30.55	2.15	+ 1.25	+ 30 27 7.0	19.8	+ 2.0
λ " . .	6	36 58.8	6 56 58.8	30.55	2.16	+ 1.26	+ 30 33 36.4	19.6	+ 2.1
	6.7	40 35.0	7 0 35.0	30.55	1.08	— 1.47	+ 16 29 30.2	37.6	— 1.8
	8	43 14.9	3 14.9	30.56	1.69	— 0.41	+ 24 52 48.1	26.4	+ 0.4
δ " . .	3	7 46 50.2	7 6 50.2	30.56	1.50	— 0.96	+ 22 20 36.0	29.6	— 0.4
5 Hydræ .	5.6	9 16 35.0	8 36 35.0	30.65	0.42	— 1.06	+ 6 36 24.6	53.9	— 1.6
	7	20 35.2	40 35.2	30.65	0.39	— 0.96	+ 6 7 24.5	54.9	— 1.5
ζ " . .	4	23 34.4	43 34.4	30.66	0.43	— 1.09	+ 6 44 18.4	53.6	— 1.6
	7.8	26 45.9	46 45.9	30.66	1.88	+ 0.30	+ 27 14 8.2	23.6	+ 1.0
	7	28 30.7	48 30.7	30.66	2.00	+ 0.87	+ 28 42 58.6	21.8	+ 1.5
	7	30 51.7	50 51.7	30.67	2.00	+ 0.87	+ 28 42 54.3	21.8	+ 1.5
	6	32	52				+ 39 16 31.0	10.0	+ 3.9
	6.7	35 9.8	55 9.8	30.67	2.53	+ 1.35	+ 34 43 16.1	15.0	+ 3.0
	6.7	37 9.8	57 9.8	30.67	2.27	+ 1.38	+ 31 48 18.8	18.2	+ 2.4
	7	39 26.2	8 59 26.2	30.67	1.26	— 1.32	+ 18 53 42.8	34.3	— 1.3
	7	43 39.7	9 3 39.7	30.68	2.49	+ 1.37	+ 34 22 8.4	15.4	+ 3.0
83 Cancri . .	7	46 31.7	6 31.7	30.68	1.23	— 1.34	+ 18 35 17.6	34.7	— 1.4
	6.7	48 56.2	8 56.2	30.68	1.06	— 1.48	+ 16 15 20.4	38.0	— 1.8
	7	52 2.8	12 2.8	30.68	1.26	— 1.31	+ 19 2 12.7	34.1	— 1.3
2 ω Leonis . .	6	56 30.2	16 30.2	30.69	0.64	— 2.28	+ 9 58 1.0	48.0	— 1.8
	7	9 57 44.1	17 44.1	30.69	1.53	— 0.90	+ 22 43 32.6	29.2	— 0.3
		10 0 3.7	20 3.7	30.69	1.02	— 1.52	+ 15 28 23.6	39.2	— 1.9
7 " . .	6	3 41.3	23 41.3	30.70	1.00	— 1.54	+ 15 18 43.0	39.4	— 1.9
	7	6 22.3	26 22.3	30.70	1.41	— 1.11	+ 21 14 18.0	31.1	— 0.7
ψ " . .	6	10 11 34.6	9 31 34.6	+ 0 30.71	— 0.98	— 1.57	+ 14 58 42.9	— 0 40.0	— 1.9

1785 MARCH 23 Zero corr. = + 1′ 33″.4.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Aldebaran	1	5 3 6.5	4 23 6.5	+ 0 33.51	— 1.06	— 1.49	+ 16 2 48.7	— 0 38.8	— 1.8
Rigel . .	1	5 43 37.5	5 3 37.5	33.57	+ 0.55	+ 1.87	— 8 27 55.0	1 33.4	— 0.5
	7	7 14 36.5	6 34 36.5	33.65	— 2.86	+ 1.27	+ 37 42 45.2	0 11.8	+ 3.6
59 Aurigæ .	6	17 43.2	37 43.2	33.66	3.00	+ 1.28	+ 39 5 2.2	10.4	+ 3.9
	7.8	23 39.2	43 39.2	33.67	0.84	— 1.94	+ 12 49 41.1	43.8	— 2.0
41 Geminorum	6	27 24.6	47 24.6	33.68	1.08	— 1.48	+ 16 20 42.2	38.4	— 1.8
	6.7	29 25.3	49 25.3	33.68	1.20	— 1.38	+ 18 1 47.7	35.9	— 1.5
44 ω² " . .	6.7	31 51.8	51 51.8	33.68	1.56	— 0.87	+ 22 55 32.6	29.2	— 0.2
Uranus .		33 15.3	53 15.3	33.68	1.60	— 0.81	+ 23 17 45.0	28.8	— 0.1
τ Geminorum	3	36 56.0	6 56 56.0	33.69	2.18	+ 1.27	+ 30 33 39.8	19.9	+ 2.1
51 " . .	6	40 31.6	7 0 31.6	33.69	1.10	— 1.47	+ 16 29 36.9	38.1	— 1.8
	6.7	41	1				+ 25 13 27.0	26.3	+ 0.4
	8	43 12.6	3 12.6	33.69	1.71	— 0.41	+ 24 52 53.0	26.8	+ 0.4
δ " . .	3	46 46.8	6 46.8	33.69	1.52	— 0.96	+ 22 20 45.3	30.0	— 0.4
	5.6	48 43.7	8 43.7	33.69	3.22	+ 1.37	+ 41 2 39.3	8.3	+ 4.3
	6.7	50 39.4	10 39.4	33.70	1.97	+ 0.58	+ 28 1 5.0	23.0	+ 1.3
	5	51 51.4	11 51.4	33.70	1.99	+ 0.66	+ 28 11 23.8	22.8	+ 1.3
	7.8	54 47.7	14 47.7	33.70	1.96	+ 0.53	+ 27 57 10.1	23.1	+ 1.3
	6	7 57 21.0	17 21.0	33.71	0.82	— 2.09	+ 12 25 21.6	0 44.5	— 2.0
	6	8 2 27.7	22 27.7	33.71	0.25	— 0.41	+ 3 48 54.1	1 0.2	— 1.3
δ³ Can. Maj.	6.7						+ 3 43 15.0	1 0.4	— 1.3
	7	5 37.0	25 37.0	33.71	2.36	+ 1.39	+ 32 27 56.8	0 17.7	+ 2.5
c Geminorum	6	10 29.1	30 29.1	33.72	1.82	— 0.05	+ 26 15 43.8	25.1	+ 0.7
80 π " . .	5	13 6.3	33 6.3	33.72	2.49	+ 1.39	+ 33 54 22.4	16.2	+ 2.9
a)	7.8	15 11.7	35 11.7	33.72	1.62	— 0.73	+ 23 38 28.6	28.4	0.0
b) 26 Lyncis .	6	18 29.8	38 29.8	33.72	4.12	+ 3.05	+ 48 4 40.2	0.8	+ 5.5
	7	25 14.5	45 14.5	33.73	2.75	+ 1.29	+ 36 37 41.0	13.1	+ 3.4
5 Cancri . .	6	28 44.8	48 44.8	33.74	1.13	— 1.43	+ 17 1 5.4	37.4	— 1.7
	7	8 30 38.6	7 50 38.6	+ 0 33.74	— 1.54	— 0.90	+ 22 38 28.0	— 0 29.7	— 0.3

a Min. assumed as 15m.; not 16m. b T. II assumed as 29m. 5s.; not 39m. 5s.

1785 MARCH 23—Continued

Zero corr. = + 1′ 33″.4.

Name	Mag.	T.	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
	7	8 33 2.7	7 53 2.7	+ 0 33.74	− 0.94	− 1.65	+ 14 5 17.6	− 0 41.9	− 2.0
	7	35 8.9	55 8.9	33.74	1.98	+ 0.59	+ 28 4 23.2	23.0	+ 1.3
13 Canc. cat. 1712	6.7	38 24.2	7 58 24.2	33.75	1.00	− 1.56	+ 15 14 13.9	40.2	− 1.9
	7	41 21.7	8 1 21.7	33.75	1.22	− 1.36	+ 18 17 42.3	35.6	− 1.5
β Cancri . .	4.3	44 21.1	4 21.1	33.75	0.64	− 2.17	+ 9 49 18.0	49.0	− 1.8
		8 45 22.7	8 5 22.7	33.75	0.62	− 1.92	+ 9 30 20.0	49.4	− 1.8
a) 7 Leonis . .	7	10 3 37.3	9 23 37.3	33.83	1.00	− 1.54	+ 15 18 49.0	40.0	− 1.9
	7.8	6 18.0	26 18.0	33.83	1.44	− 1.11	+ 21 14 22.0	31.6	− 0.8
	7	33 12.2	53 12.2	33.86	0.59	− 1.66	+ 9 0 41.0	50.4	− 1.8
η " . .	3.4	35 5.8	55 5.8	33.86	1.19	− 1.40	+ 17 47 9.8	36.3	− 1.5
	7.8	36 57.3	56 57.3	33.86	1.45	− 1.09	+ 21 21 39.0	31.4	− 0.7
	7.8	38 43.9	9 58 43.9	33.87	1.47	− 1.05	+ 21 44 9.6	30.9	− 0.6
	7	42 9.3	10 2 9.3	33.87	1.51	− 0.99	+ 22 12 46.8	30.3	− 0.5
b) 39 " . .	6.7	44 53.5	4 53.5	33.87	1.66	− 0.59	+ 24 9 30.2	27.8	0.0
γ " . .	3	47 36.7	7 36.7	33.88	1.40	− 1.16	+ 20 54 14.5	32.2	− 0.8
42 " . .	7	49 47.0	9 47.0	33.88	1.06	− 1.49	+ 16 2 12.0	39.0	− 1.8
	6	10 56 22.2	16 22.2	33.88	2.20	+ 1.29	+ 30 47 54.0	19.6	+ 2.1
34 Leon. Min.	5	11 0 40.5	20 40.5	33.89	2.69	+ 1.30	+ 36 4 0.0	13.7	+ 3.3
	6.7	11 0.5	31 0.5	33.90	0.30	− 0.59	+ 4 41 19.8	0 58.5	− 1.4
	8.9	13 55.0	33 55.0	33.90	0.13	− 0.12	+ 2 7 35.0	1 4.0	− 1.0
	8	17 46.3	37 46.3	33.90	0.30	− 0.56	+ 4 33 41.0	0 58.9	− 1.4
	8	19 19.3	39 19.3	33.91	0.31	− 0.60	+ 4 42 50.4	0 58.5	− 1.4
55 Leonis . .	6.5	24 7.3	44 7.3	33.92	0.12	− 0.08	+ 1 52 8.8	1 4.6	− 1.0
57 " . .	6	24 ½	44 ½				+ 1 33 58.0	1 5.1	− 1.0
58 d Leonis . .		28 56.5	48 56.5	33.92	0.31	− 0.61	+ 4 45 21.2	0 58.4	− 1.4
c) Moon . .		11 29 35.7	10 49 35.7	+ 0 33.92	− 0.31	− 0.64	+ 4 52 58.4	− 1 0.3	− 1.4

1785 MARCH 30

Zero corr. = + 1′ 30″.2.

Name	Mag.	T.	App. sid. time	Clock corr.	$n \tan \delta$	q	$\zeta - \phi$	Refr.	q'
Sirius .	1		6 34 39.5	+ 0 59.83	+ 1.13	+ 1.67	− 16 25 39.3	− 2 8.6	− 0.5
92 Leonis . .	4.5		11 28 39.8	1 0.08	− 1.60	− 0.93	+ 22 31 31.3	0 29.5	− 0.3
	7		29 58.9	1 0.08	1.66	− 0.79	+ 23 23 1.0	28.4	− 0.1
			32 4.5	1 0.08	1.91	0.00	+ 26 23 14.9	24.7	+ 0.8
	6		39 1.3	1 0.09	2.65	+ 1.37	+ 34 32 39.4	15.2	+ 3.0
	7		41 41.2	1 0.09	2.68	+ 1.35	+ 34 47 15.8	15.0	+ 3.1
	6		44 15.0	1 0.09	2.84	+ 1.29	+ 36 37 2.3	12.9	+ 3.4
	7.8		48 9.8	1 0.10	2.99	+ 1.27	+ 37 53 56.0	11.6	+ 3.7
d)	7.8		54 25.0	1 0.10	4.20	+ 2.87	+ 47 27 22.0	14.7	+ 5.4
	6		11 58 54.1	1 0.10	2.09	+ 0.77	+ 28 27 18.3	22.1	+ 1.4
	7		12 2 37.1	1 0.11	1.78	− 0.42	+ 24 50 42.0	26.5	+ 0.4
7 Comæ . .	5.6		4 31.4	1 0.11	1.81	− 0.35	+ 25 7 11.2	26.3	+ 0.4
	7		7 15.2	1 0.11	1.98	+ 0.27	+ 27 10 48.0	23.8	+ 1.0
	7.6		8 33.1	1 0.11	1.98	+ 0.27	+ 27 10 22.0	23.8	+ 1.0
e Comæ . .	4.5		10 45.7	1 0.11	1.96	+ 0.21	+ 27 1 6.7	23.9	+ 1.0
	7		12 43.0	1 0.12	1.94	+ 0.10	+ 26 45 12.6	24.3	+ 0.9
	6		15 17.3	1 0.12	2.47	+ 0.57	+ 27 59 40.7	22.8	+ 1.3
d " . .	6		17 14.2	1 0.12	1.97	+ 0.24	+ 27 4 55.1	22.6	+ 1.0
	8		19 54.9	1 0.12	2.07	+ 0.68	+ 28 14 0.0	22.5	+ 1.3
25 Comæ . .	5		23 25.2	1 0.12	1.36	− 1.27	+ 19 32 32.8	33.6	− 0.9
	7.8		30 56.1	1 0.13	2.68	+ 1.34	+ 34 51 7.6	14.9	+ 3.1
	7		33 33.8	1 0.13	2.09	+ 0.80	+ 28 33 4.2	22.2	+ 1.5
36 Virginis .	6		37 12.7	1 0.14	1.07	− 1.55	+ 15 16 50.0	39.6	− 1.9
31 Comæ . .	5.6		40 16.8	1 0.14	2.11	+ 0.86	+ 28 41 31.6	21.9	+ 1.5
	7.8		42 31.1	1 0.15	2.04	+ 0.54	+ 27 55 34.0	22.9	+ 1.3
	7		44 28.3	1 0.15	2.52	+ 1.40	+ 33 6 40.3	16.8	+ 2.7
	7		45 ½				+ 44 41 20.0	4.4	+ 5.0
	6.7		49 12.4	1 0.15	2.49	+ 1.40	+ 32 55 0.1	17.1	+ 2.7
	7.8		53 7.3	1 0.15	3.74	+ 1.70	+ 44 8 3.0	4.9	+ 4.9
	6		12 55 14.1	1 0.16	+ 4.06	+ 2.53	+ 46 23 27.3	0 2.6	+ 5.3
α Virginis .	1		13 12 53.7	+ 1 0.17	+ 0.68	+ 1.79	− 10 2 12.6	− 1 38.7	− 0.4

a Div. assumed as 35 12 6; not 35 12 10.
b Transit over T. III assumed as recorded over T. II.
c ζ assumed as 43°; not 44°.
d ζ assumed as 1° 23′ 43″; not 1° 24′ 3″.

1785 APRIL 5 Zero corr. = + 1′ 38″.3.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
		h m s	h m s	m s	s	s	° ′ ″	′ ″	″
Sun . .			0 57 4.8				+ 6 35 17.2	— 0 53.2	— 1.6
			0 59 14.6						
δ Orionis .	2		5 19 55.1	+ 1 6.93	+ 0.03	+ 0.53	— 0 28 48.6	1 9.4	— 0.8
ε " . .	2		24 11.4	1 6.94	0.09	+ 0.86	— 1 21 42.2	11.5	— 0.7
ζ " . .	2		5 28 47.8	1 6.94	+ 0.14	+ 1.08	— 2 4 39.0	1 13.3	— 0.7
ε Geminorum	3		6 29 37.6	1 7.02	— 1.84	— 0.30	+ 25 18 28.8	0 26.1	+ 0.5
Sirius . .	1		6 34 31.6	1 7.02	+ 1.15	+ 1.67	— 16 25 42.6	2 8.9	— 0.5
Procyon .	1		7 26 57.9	1 7.08	— 0.39	— 0.87	+ 5 45 2.4	0 55.8	— 1.5
β Geminorum	2		31 4.1	1 7.09	2.12	+ 0.79	+ 28 30 35.0	22.1	+ 1.5
25 Lyncis .	6		37 43.6	1 7.09	4.31	+ 2.99	+ 47 53 53.9	1.0	+ 5.5
13 Canc. Cat. 1712	6		57 50.5	1 7.12	1.06	— 1.56	+ 15 14 7.4	39.8	— 1.9
	6.7		7 59 53.0	1 7.12	1.71	— 0.72	+ 23 45 3.8	28.0	0.0
	7		8 4 49.5	1 7.12	1.99	+ 0.19	+ 26 58 16.8	24.0	+ 1.0
31 Lyncis .	5						+ 43 50 13.0	5.3	+ 4.9
	8		9 35.1	1 7.13	0.78	— 3.00	+ 11 19 3		
21 Cancri . .	6		11 7.1	1 7.14	0.78	— 3.00	+ 11 18		
	7		20 46.8	1 7.15	0.97	— 1.65	+ 13 57 49.8	41.8	— 2.0
			23 46.6	1 7.15	2.58	+ 1.40	+ 33 30 56.0	16.4	+ 2.8
	7		25 2.1	1 7.16	2.56	+ 1.40	+ 33 14 8.6	16.8	+ 2.7
	7		28 42.5	1 7.16	2.98	+ 1.27	+ 37 26 56.0	12.1	+ 3.6
a)	7		33 4.6	1 7.17	2.16	+ 0.95	+ 28 55 0.6	21.7	+ 1.6
5 Leon. Min.	6.7		36 4.4	1 7.17	2.63	+ 1.38	+ 34 3 10.6	15.8	+ 2.9
	7.8		40 1.2	1 7.18	1.28	— 1.37	+ 18 9 4.0	35.5	— 1.5
ζ Hydræ .	4		42 57.4	1 7.18	0.46	— 1.09	+ 6 44 19.4	54.0	— 1.6
	7		47 53.7	1 7.18	2.13	+ 0.86	+ 28 43 0.0	21.9	+ 1.5
	7.8		50 15.0	1 7.19	2.13	+ 0.86	+ 28 42 58.6	21.9	+ 1.5
	5.6		51 44.3	1 7.19	3.19	+ 1.28	+ 39 16 33.0	10.1	+ 3.9
	6.7		54 33.2	1 7.20	2.70	+ 1.35	+ 34 43 20.6	15.1	+ 3.0
	6.7		56 33.3	1 7.20	2.42	+ 1.38	+ 31 48 19.1	18.4	+ 2.5
	7.8		8 58 48.4	1 7.20	1.34	— 1.32	+ 18 53 48.6	34.6	— 1.3
	6.7		9 0 55.7	1 7.20	2.78	+ 1.32	+ 35 29 15.0	14.2	+ 3.1
	7.8		3 4.6	1 7.21	2.66	+ 1.37	+ 34 22 7.7	15.5	+ 2.9
	7		6 24.4	1 7.21	3.16	+ 1.28	+ 39 3 47.2	10.4	+ 3.9
	7.8		8 19.3	1 7.21	1.14	— 1.48	+ 16 15 21.2	38.3	— 1.8
	8.9		11 25.5	1 7.22	1.34	— 1.31	+ 19 2 15.2	34.4	— 1.3
ω Leonis . .	5		15 53.3	1 7.22	0.69	— 2.24	+ 9 58 6.6	48.3	— 1.8
	7		20 37.3	1 7.23	1.76	— 0.56	+ 24 22 58.0	27.4	+ 0.1
	7.8		25 32.7	1 7.24	0.95	— 1.69	+ 13 40 41.6	42.3	— 2.0
	8		27 51.2	1 7.24	0.97	— 1.65	+ 14 0 35.2	41.8	— 2.0
	7		31 ½				+ 46 4 33.0	2.9	+ 5.3
	7.8		35 54.7	1 7.25	3.34	+ 1.34	+ 40 35 51.1	8.7	+ 4.2
22 " . .	6		38 36.1	1 7.25	1.85	— 0.28	+ 25 22 59.2	26.1	+ 0.5
Regulus .	1		9 55 52.2	1 7.28	0.90	— 1.79	+ 12 59 35.8	43.4	— 2.0
	6.7		10 0 35.3	1 7.28	2.09	+ 0.66	+ 28 10 17.1	22.7	+ 1.3
	7.8		3 10.8	1 7.29	2.22	+ 1.15	+ 29 43 46.8	21.0	+ 1.8
	7		4 57.8	1 7.29	2.11	+ 0.78	+ 28 27 36.0	22.3	+ 1.4
	8		7 30.4	1 7.29	2.41	+ 1.37	+ 31 42 45.4	18.5	+ 2.4
	7.8		9 32.3	1 7.30	2.86	+ 1.30	+ 36 16 21.0	13.4	+ 3.3
	7		10 12 14.5	+ 1 7.30	— 2.88	+ 1.30	+ 36 29 21.1	— 0 13.1	+ 3.4

1785 APRIL 9 Zero corr. = + 1′ 34″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
	6		8 18 8.6	+ 1 14.92	— 1.39	— 1.26	+ 19 40 53.4	— 0 33.1	— 1.2
	6		20 37.8	1 14.92	0.97	— 1.66	+ 13 57 50.8	41.4	— 2.0
1 Leon. Min.	6 .		23 38.1	1 14.93	2.58	+ 1.40	+ 33 30 59.2	16.3	+ 2.8
	6.7		25 16.5	1 14.93	2.58	+ 1.40	+ 33 27 1.5	16.4	+ 2.8
	7		28 16.6	1 14.93	1.47	— 1.18	+ 20 36 33.0	31.8	— 0.9
	7.8		30				+ 37 39 39.0	11.8	+ 3.6
	7.8		30 35.8	1 14.94	3.05	+ 1.27	+ 38 2 16.0	11.4	+ 3.7
	7		32 55.8	1 14.94	2.16	+ 0.94	+ 28 54 59.8	21.6	+ 1.6
35 Lyncis .	5.6		36 14.9	1 14.94	3.84	+ 1.80	+ 44 29 15.6	4.5	+ 4.9
	6.7		38				+ 19 36 14.0	33.2	— 1.2
	7		8 39 52.2	+ 1 14.95	— 1.28	— 1.37	+ 18 9 7.0	— 0 35.2	— 1.5

a T. II assumed as 4s.; not 24s.

1785 APRIL 9—Continued Zero corr. = + 1′ 34″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	m s	s	s	° ′ ″	′ ″	″
	7		8 40 30.1	+ 1 14.95	— 1.29	— 1.36	+ 18 19 40.0	— 0 35.0	— 1.5
	6.7		42 3.5	1 14.95	1.27	— 1.38	+ 18 1 11.8	35.4	— 1.5
κ Urs. Maj. .	4.5		45 25.7	1 14.95	3.59	+ 1.48	+ 42 35 45.7	6.5	+ 4.6
ν Cancri . .	6		8 48 56.2	1 14.96	1.84	— 0.30	+ 25 15 59.8	25.9	+ 0.5
	9.10		13 24 44.7	1 15.38	1.82	— 0.37	+ 25 0 48.0	26.3	+ 0.4
	6.7		25 39.9	1 15.38	1.87	— 0.19	+ 25 41 28.2	25.5	+ 0.6
	9.10		27 37.4	1 15.38	1.83	— 0.33	+ 25 12 21.0	26.1	+ 0.4
2 Boötis . .	6		29 40.3	1 15.38	1.70	— 0.75	+ 23 34 2.5	28.1	0.0
	7		33 27.1	1 15.39	0.78	— 3.01	+ 11 23 40.1	45.5	— 1.9
3 " . .	6		35 32.2	1 15.39	1.96	+ 0.11	+ 26 45 43.3	24.1	+ 0.9
6 " . .	6		38 21.8	1 15.40	1.60	— 0.96	+ 22 18 54.0	29.7	— 0.4
	7		39 3.5	1 15.40	1.60	— 0.96	+ 22 19 27.0	29.7	— 0.4
	6.7		42 12.7	1 15.40	2.22	+ 1.14	+ 29 41 13.2	20.7	+ 1.8
9 " . .	5.6		45 33.2	1 15.40	2.12	+ 0.79	+ 28 31 37.8	22.0	+ 1.5
a) 11 " . .	6		50 13.1	1 15.42	2.11	+ 0.76	+ 28 24 23.5	22.2	+ 1.4
	7		52 10.8	1 15.42	1.70	— 0.76	+ 23 30 52.5	28.2	+ 0.1
	7		56 11.8	1 15.42	2.81	+ 1.31	+ 35 46 55.7	13.8	+ 3.3
12 d " . .	6.5		13 59 24.3	1 15.43	1.91	— 0.09	+ 26 5 35.3	25.0	+ 0.7
	7.8		14 1 46.0	1 15.43	3.68	+ 1.56	+ 43 19 32.5	5.7	+ 4.7
	7		4 31.4	1 15.44	3.57	+ 1.47	+ 42 30 9.2	6.6	+ 4.6
	7		6 27.7	1 15.44	3.36	+ 1.35	+ 40 43 2.6	8.5	+ 4.2
	7		9 46.4	1 15.44	3.24	+ 1.30	+ 39 45 32.0	9.5	+ 4.1
	7		13 16.8	1 15.45	2.11	+ 0.73	+ 28 22 15.4	22.2	+ 1.4
	6.7		15 31.2	1 15.45	3.20	+ 1.28	+ 39 20 29.1	10.0	+ 3.9
	7.8		17 45.5	1 15.46	3.51	+ 1.42	+ 41 57 57.9	7.2	+ 4.5
σ " . .	5		24 6.7	1 15.47	2.31	+ 1.27	+ 30 39 35.8	19.5	+ 2.1
	6.7		27 3.3	1 15.47	1.36	— 1.30	+ 19 13 9.8	33.9	— 1.3
	8.9		30 42.0	1 15.48	1.38	— 1.28	+ 19 24 13.0	33.6	— 1.2
b)	9		33 4.4	1 15.48	1.36	— 1.29	+ 19 22 8.0	33.7	— 1.3
	7		34 13.5	1 15.48	1.40	— 1.25	+ 19 46 38.2	33.1	— 1.1
	6.7		37 39.7	1 15.48	1.83	— 0.31	+ 25 14 37.6	25.9	+ 0.4
	7		39				+ 24 47 1.0	26.5	+ 0.3
c)	6.7		42 33.0	1 15.49	2.51	+ 1.40	+ 32 47 15.9	17.1	+ 2.7
	7		44 10.2	1 15.50	2.52	+ 1.40	+ 32 52 14.9	17.1	+ 2.7
	7		45 51.5	1 15.50	2.55	+ 1.40	+ 33 8 59.0	0 16.7	+ 2.7
110 Virginis .	4.5		50 50.3	1 15.50	2.20	— 0.27	+ 2 55 54.4	1 1.3	— 1.2
ψ Boötis . .	5		54 2.0	1 15.50	2.06	+ 0.47	+ 27 46 8.0	0 22.9	+ 1.2
45 c " . .	5.6		14 56 40.3	+ 1 15.51	— 1.88	— 0.19	+ 25 41 25.5	— 0 25.5	+ 0.6

1785 APRIL 10 Zero corr. = + 1′ 38″.9.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
15 ψ³ Cancri . .	5		7 58 32.8	+ 1 17.33	— 2.28	+ 1.22	+ 30 15 56.9	— 0 20.0	+ 2.0
31 Lyncis . .	5		8 6 50.2	1 17.34	3.74	+ 1.66	+ 43 50 14.6	5.2	+ 4.9
	7		12 25.6	1 17.35	1.24	— 1.40	+ 17 43 26.2	35.9	— 1.6
28 υ² Cancri . .	7		14 36.7	1 17.35	1.80	— 0.42	+ 24 49 31.7	26.4	+ 0.3
	7		19 44.9	1 17.36	0.74	— 2.76	+ 10 45 58.8	46.4	— 1.9
	7		20				+ 13 57 52.0	41.4	— 2.0
	7		22 50.0	1 17.36	1.12	— 1.49	+ 16 1 39.7	38.3	— 1.8
d) 2 Leon. Min.	6		24 51.6	1 17.37	2.56	+ 1.40	+ 33 14 12.0	16.6	+ 2.7
e) 2 " . .	7		25 15.1	1 17.37	2.57	+ 1.40	+ 33 27 2.0	16.4	+ 2.8
	7.8		28 14.8	1 17.37	1.47	— 1.18	+ 20 36 31.6	31.8	— 0.9
	6.7						+ 37 39 37.0	11.7	+ 3.6
	7.8		31 17.6	1 17.38	2.18	+ 1.05	+ 29 11 22.6	21.2	+ 1.6
	7.8		35 10.7	1 17.38	2.68	+ 1.37	+ 34 28 53.3	15.2	+ 3.0
5 " . .	6.7		35 54.8	1 17.38	2.63	+ 1.38	+ 34 3 13.8	15.7	+ 2.9
	6		39 51.3	1 17.39	2.38	+ 1.34	+ 31 21 32.6	18.7	+ 2.3
	7		40				+ 18 19 44.0	35.0	— 1.5
	7		42 20.0	1 17.39	1.84	— 0.32	+ 25 14 26.4	26.0	+ 0.4
	9		44 57.2	1 17.40	1.80	— 0.44	+ 24 45 54.2	26.5	+ 0.3
	8		46				+ 27 14 11.0	23.6	+ 1.0
	7		48 25.4	1 17.40	1.26	— 1.40	+ 17 53 42.0	35.6	— 1.5
	7		8 50 4.8	+ 1 17.41	— 2.14	+ 0.86	+ 28 42 56.8	— 0 21.7	+ 1.5

a T. I assumed as 47s.; not 37s.
b ζ assumed as 29° 28′; not 29° 33′.
c Transits discordant.
d T. II assumed as 24m.; not 34m.
e ζ assumed as 15° 24′ 2″; not 15° 24′ 32″.

1785 APRIL 10—Continued Zero corr. = + 1′ 38″.9.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	m s	s	s	° ′ ″	′ ″	″
	8		8 53 0.1	+ 1 17.41	— 1.17	— 1.45	+ 16 41 31.0	— 0 37.3	— 1.7
	7		55 1.2	1 17.41	1.08	— 1.52	+ 15 32 58.8	38.9	— 1.8
36 Lyncis .	5		8 58 27.1	1 17.42	3.77	+ 1.70	+ 44 3 58.5	5.0	+ 4.9
			9 1 47.3	1 17.42	0.85	— 2.14	+ 12 21 33.6	44.0	— 2.0
	7.8		8 14.4	1 17.43	1.23	— 1.41	+ 17 29 7.2	36.3	— 1.6
	6.7		9 48.5	1 17.43	2.99	+ 1.27	+ 37 28 29.9	11.9	+ 3.6
	7		12 8.2	1 17.43	2.98	+ 1.27	+ 37 21 11.2	12.1	+ 3.5
	6.7		15 39.1	1 17.44	2.68	+ 1.37	+ 34 27 26.9	15.3	+ 3.0
7 Leon. Min.	6		16 27.4	1 17.44	2.69	+ 1.37	+ 34 34 2.8	15.1	+ 3.0
8 " . .	6		16 ½				+ 36 1 9.0	13.6	+ 3.3
	6.7		20 27.7	1 17.45	1.77	— 0.57	+ 24 22 53.1	27.1	+ 0.1
	7		22 5.8	1 17.45	0.94	— 1.70	+ 13 35 9.5	42.1	— 2.0
	7		25 22.8	1 17.46	0.95	— 1.69	+ 13 40 33.8	41.9	— 2.0
43 Lyncis . .	6.5		27 24.7	1 17.46	3.35	+ 1.35	+ 40 42 9.2	8.5	+ 4.2
	8		29 33.5	1 17.46	2.73	+ 1.33	+ 35 2 48.0	14.6	+ 3.1
	7		31 39.3	1 17.47	4.04	+ 2.43	+ 46 4 33.4	2.9	+ 5.3
14 Leon. Min.	7		35 33.5	1 17.47	4.04	+ 2.43	+ 46 3 15.1	2.9	+ 5.3
a)	6.5		38 25.8	1 17.48	1.85	— 0.28	+ 25 22 56.8	25.8	+ 0.5
	6		45 30.3	1 17.49	0.64	— 1.80	+ 9 18 58.2	49.1	— 1.8
π Leonis .	4		46				+ 9 3 9.0	49.4	— 1.8
b)	7		50 54.2	1 17.50	0.75	— 2.83	+ 10 54 56.6	46.3	— 1.9
Regulus .	1		55 41.9	1 17.50	0.90	— 1.79	+ 12 59 35.7	43.0	— 2.0
	7		9 59 14.2	1 17.51	2.19	+ 1.06	+ 29 16 23.0	21.2	+ 1.4
	6.7		10 0 25.9	1 17.51	2.08	+ 0.66	+ 28 10 11.8	22.5	+ 1.3
24 Leon. Min.	7		3 0.6	1 17.51	2.22	+ 1.15	+ 29 43 45.4	20.7	+ 1.8
	7		4 48.9	1 17.52	2.11	+ 0.78	+ 28 27 36.2	22.1	+ 1.4
	7.8		7 20.4	1 17.52	2.41	+ 1.37	+ 31 42 44.4	18.4	+ 2.4
	8		9 22.1	1 17.52	2.86	+ 1.30	+ 36 16 20.7	13.3	+ 3.3
	7		12 4.4	1 17.53	2.89	+ 1.30	+ 36 29 19.6	13.1	+ 3.4
	6.7		15 38.8	1 17.53	2.32	+ 1.29	+ 30 47 53.4	19.5	+ 2.1
	7.8		17 12.9	1 17.54	2.26	+ 1.32	+ 40 5 36.0	9.2	+ 4.1
	7.8		19 20.8	1 17.54	3.31	+ 1.32	+ 40 17 49.6	9.0	+ 4.1
	9		25 0.7	1 17.55	1.29	— 1.35	+ 18 22 16.0	35.2	— 1.5
	6		28 52.1	1 17.55	2.51	+ 1.40	+ 32 47 36.0	17.1	+ 2.7
40 " . .	6		29 58.6	1 17.55	2.02	+ 0.36	+ 27 25 34.8	23.4	+ 1.1
	6		10 33 35.4	1 17.56	1.42	— 1.23	+ 19 59 59.2	32.8	— 1.1
2 ξ Virginis .	5.6		11 35 38.5	1 17.65	0.65	— 1.86	+ 9 25 20.4	49.1	— 1.8
	6.7		39 19.0	1 17.66	0.63	— 1.76	+ 9 13 58.4	49.4	— 1.8
	7		41 24.3	1 17.66	2.70	+ 1.35	+ 34 47 12.2	15.0	+ 3.1
	7		44 55.5	1 17.67	3.45	+ 1.39	+ 41 30 59.4	7.7	+ 4.4
	8.9		47 51.8	1 17.67	3.04	+ 1.27	+ 37 53 59.0	11.6	+ 3.7
	6.7		49 56.0	1 17.67	3.80	+ 1.73	+ 44 12 35.2	4.9	+ 4.9
11 S " . .	6		11 57 52.3	1 17.68	0.48	— 1.15	+ 6 59 14.6	53.4	— 1.6
c)	7		12 3 16.8	1 17.69	4.38	+ 3.09	+ 48 16 51.5	0.6	+ 5.5
	7.8		8 37.0	1 17.70	2.10	+ 0.67	+ 28 13 53.0	22.5	+ 1.3
	6.7		13 11.8	1 17.71	— 1.82	— 0.36	+ 25 5 52.8	0 26.3	+ 0.4
d) 510 Mayer . .	6.8		12 15 32.5	+ 1 17.71	+ 0.23	+ 1.43	— 3 25 58.1	— 1 17.0	— 0.7

1785 APRIL 11 Zero corr. = + 1′ 37″.4.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
Sun . .			1 18 50.9						
			1 21 1.0				+ 8 49 8.2	— 0 49.7	— 1.8
β Geminorum	2		7 30 51.5	+ 1 19.29	— 2.12	+ 0.79	+ 28 30 35.9	21.9	+ 1.5
β Cancri . .	4.3		8 3 35.7	1 19.35	0.68	— 2.17	+ 9 49 11.4	48.1	— 1.8
31 Lyncis .	5		6 47.9	1 19.35	3.74	+ 1.66	+ 43 50 16.4	5.2	+ 4.9
32 " . .	6		19 36.6	1 19.37	2.95	+ 1.27	+ 37 7 11.7	12.3	+ 3.5
e)			24 10.9	1 19.38	1.42	— 1.23	+ 19 59 7.4	32.7	— 1.1
4 δ Hydræ .	4						+ 6 25 40.0	54.0	— 1.5
4 Leon. Min.	7						+ 32 40 3.4	17.2	+ 2.6
f)	6.7		28 29.7	1 19.39	2.57	+ 1.27	+ 37 27 3.0	12.1	+ 3.5
g)	6		8 29 5.0	+ 1 19.39	— 3.01	+ 1.27	+ 37 39 35.4	— 0 11.7	+ 3.6

a ζ assumed as 23° 28′ 9″; not 23° 28′ 39″.
b ζ assumed as 36° 56′ 7″; not 37° 56′ 17″.
c T. II assumed as 16s.; not 18s.
d Ts. II and III assumed as 15m. 32s.5 and 15m. 55s.5 respectively; not 15m. 22s.5 and 15m. 45s.5.
e T. I assumed as 23m. 45s.5; not 23m. 44s.5.
f ζ assumed as 11°; not 15°.
g T. III assumed as 34s.

1785 APRIL 11—Continued Zero corr. = + 1′ 37″.4.

	Name.	Mag.	*T*	App. sid. time	Clock corr.	*n* tan δ	*q*	ζ — φ	Refr.	*q′*
				h m s	m s	s	s	° ′ ″	′ ″	″
	49 *b* Cancri . .	6		8 31 49.6	+ 1 19.39	— 0.75	— 2.79	+ 10 49 58.6	— 0 46.3	— 1.9
	11 *ε* Hydræ .	4		34 7.3	1 19.40	0.49	— 1.19	+ 7 10 53.0	52.6	— 1.6
		7		35				+ 13 18 43.4	42.4	— 2.0
		7.6		37 46.7	1 19.40	1.13	— 1.48	+ 16 7 9.5	38.1	— 1.8
		7		40 21.0	1 19.41	1.48	— 1.17	+ 20 44 59.0	31.7	— 0.9
		10.11		44 21.0	1 19.41	2.01	+ 0.30	+ 27 17 15.0	23.5	+ 1.1
		6.7		45 57.2	1 19.42	2.01	+ 0.28	+ 27 14 8.7	23.5	+ 1.0
	69 *ν* Cancri . .	6.5		48 52.5	1 19.42	1.84	— 0.30	+ 25 16 0.1	25.9	+ 0.5
	78 " . .	7.8		55 43.0	1 19.43	1.29	— 1.36	+ 18 18 41.0	37.9	— 1.5
		7		8 57				+ 12 24 45.0	43.8	— 2.0
		9.10		9 0 3.8	1 19.44	0.79	— 3.00	+ 11 31 29.0	45.3	— 2.0
		8.9		1 44.5	1 19.44	0.85	— 2.14	+ 12 21 34.4	43.8	— 2.0
		6.7		4 55.8	1 19.45	0.85	— 2.14	+ 12 22 29.4	43.8	— 2.0
		8		8 28.2	1 19.46	1.60	— 0.96	+ 22 22 57.0	29.5	— 0.4
		7		11 25.9	1 19.46	1.31	— 1.33	+ 18 36 19.8	34.6	— 1.4
		7		13 53.5	1 19.47	1.06	— 1.56	+ 15 12 35.0	39.4	— 1.9
		7		16 54.8	1 19.47	1.63	— 0.90	+ 22 43 32.6	29.1	— 0.3
	4 λ Leonis .	4.5		18 9.8	1 19.47	1.73	— 0.68	+ 23 53 10.0	27.7	0.0
		6		20 25.8	1 19.48	1.77	— 0.56	+ 24 22 53.1	27.0	+ 0.1
a)		9		22 9.1	1 19.48	1.04	— 1.57	+ 15 0 20.0	39.8	— 1.9
	7 " . .	6		22 52.2	1 19.48	1.07	— 1.54	+ 15 18 45.6	39.4	— 1.9
		6.7		25 20.7	1 19.48	0.95	— 1.69	+ 13 40 37.3	41.8	— 2.0
		7		27 38.6	1 19.49	0.97	— 1.65	+ 14 0 29.6	41.3	— 2.0
b)		9.10		30 1.4	1 19.49	2.80	+ 1.31	+ 35 40 23.7	14.0	+ 3.2
		6		35 9.5	1 19.50	3.01	+ 1.27	+ 37 42 50.4	11.6	+ 3.6
		6.7		38 1.1	1 19.51	3.15	+ 1.28	+ 38 53 21.3	10.5	+ 3.9
		8		41 15.3	1 19.51	0.78	— 2.98	+ 11 14 44.0	45.7	— 1.9
		7		43 17.3	1 19.52	0.59	— 1.55	+ 8 40 24.0	50.1	— 1.8
		7		45 28.2	1 19.52	0.64	— 1.80	+ 9 18 59.8	49.1	— 1.8
	29 *π* " .	6.5		47 35.2	1 19.52	0.62	— 1.67	+ 9 3 9.4	49.4	— 1.8
		6.7		49 33.1	1 19.53	1.65	— 0.86	+ 22 57 27.5	28.9	— 0.2
		7.6		52 45.5	1 19.53	1.17	— 1.45	+ 16 46 34.0	37.3	— 1.7
	η " . .	3.4		54 20.3	1 19.53	1.25	— 1.40	+ 17 47 5.8	35.8	— 1.5
	Regulus .	1		55 39.9	1 19.54	0.90	— 1.79	+ 12 59 36.1	43.0	— 2.0
				57				+ 10 37 22.0	46.9	— 1.9
		7		9 59 11.8	1 19.54	2.19	+ 1.06	+ 29 16 26.0	21.2	+ 1.7
		7		10 1 23.2	1 19.55	1.59	— 0.98	+ 22 12 40.7	29.8	— 0.5
		7		4 45.7	1 19.55	2.11	+ 0.78	+ 28 27 36.8	22.1	+ 1.4
	40 Leonis .	6		6 45.4	1 19.55	1.46	— 1.19	+ 20 32 5.0	32.1	— 0.9
		8.9		7 46.9	1 19.56	1.47	— 1.18	+ 20 35 34.7	32.1	— 0.9
		7		9 19.9	1 19.56	2.86	+ 1.30	+ 36 16 20.2	13.3	+ 3.3
	29 Leon. Min.	6.7		12 2.5	1 19.56	2.89	+ 1.30	+ 36 29 19.1	13.1	+ 3.4
		8		15 6.8	1 19.57	0.32	— 0.58	+ 4 38 23.0	57.9	— 1.4
		9.8		15 40.9	1 19.57	0.30	— 0.53	+ 4 23 34.1	0 58.3	— 1.3
		7		19				+ 3 14 4.0	1 0.7	— 1.2
		7		21 31.0	1 19.58	2.16	+ 0.99	+ 29 2 51.0	0 21.6	+ 1.6
	37 " . .	5.6		25 18.6	1 19.59	2.54	+ 1.40	+ 33 3 48.2	16.9	+ 2.7
		7.8		27 8.8	1 19.59	2.13	+ 0.82	+ 28 37 1.0	22.0	+ 1.5
		7		31 40.4	1 19.60	3.56	+ 1.46	+ 42 24 24.0	6.7	+ 4.6
		7.8		34 22.6	1 19.60	3.52	+ 1.44	+ 42 12 43.6	6.9	+ 4.5
		9		38 48.8	1 19.61	2.60	+ 1.40	+ 33 44 28.0	16.1	+ 2.8
		9		39 25.2	1 19.61	2.64	+ 1.38	+ 34 6 16.0	15.7	+ 2.9
	54 Leonis .	5.6		10 42 41.7	+ 1 19.61	— 1.89	— 0.15	+ 25 52 11.4	— 0 25.3	+ 0.7

1785 APRIL 26 Zero corr. = + 1′ 40″.7.

	Name.	Mag.	*T*	App. sid. time	Clock corr.	*n* tan δ	*q*	ζ — φ	Refr.	*q′*
	Procyon .	1		7 26 5.9	+ 1 59.24	— 0.39	— 0.87	+ 5 44 57.0	— 0 54.7	— 1.5
	o Leonis .	3.4		9 27 45.8	1 59.49	0.75	— 2.79	+ 10 50 42.4	45.9	— 1.9
	16 Leon. Min.	5		35 3.2	1 59.50	3.34	+ 1.34	+ 40 35 53.1	8.5	+ 4.2
	22 *g* Leonis .	6		37 43.8	1 59.51	1.85	— 0.28	+ 25 22 57.5	25.6	+ 0.5
	π " . .	4		9 46 55.2	+ 1 59.52	— 0.62	— 1.66	+ 9 3 10.0	— 0 49.0	— 1.8

a Transits over Ts. I and II assumed as recorded over Ts. II and III. *b* ζ assumed as 13° 10′ 40″; not 13° 10′ 50.″

1785 APRIL 26—Continued Zero corr. = + 1′ 40″.7.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
			h m s	m s	s	s	° ′ ″	′ ″	″
429 Mayer . .	7		9 50 42.0	+ 1 59.54	— 0.88	— 2.71	+ 12 38 41.9	— 0 43.0	— 2.0
	8		53 8.2	1 59.54	0.96	— 1.67	+ 13 48 20.0	41.2	— 2.0
Regulus .	1		54 59.3	1 59.54	0.90	— 1.79	+ 12 59 36.1	42.5	— 2.0
	7.8		9 57 17.9	1 59.55	1.55	— 1.05	+ 21 44 5.6	30.1	— 0.6
439 Mayer . .	6		10 2 37.3	1 59.55	1.33	— 1.32	+ 18 47 2.4	34.0	— 1.4
441 " . .	7.8		5				+ 13 40 30.0	41.4	— 2.0
26 Leon. Min.	7		8 40.3	1 59.57	2.86	+ 1.30	+ 36 16 16.0	13.1	+ 3.3
28 " . .	6.5		9 49.2	1 59.57	2.70	+ 1.35	+ 34 46 31.0	14.8	+ 3.0
	7.8		11 26.3	1 59.57	2.61	+ 1.39	+ 33 49 19.2	15.8	+ 2.9
45 Leonis . .	6		14 23.5	1 59.58	0.72	— 2.79	+ 10 50 4.0	46.0	— 1.9
	7		17 27.4	1 59.58	0.22	— 0.32	+ 3 14 7.1	59.9	— 1.2
	8.9		20 14.0	1 59.59	1.53	— 1.09	+ 21 23 13.0	30.6	— 0.7
36 Leon. Min.	7.6		23 42.2	1 59.60	2.75	+ 1.33	+ 35 9 51.4	14.3	+ 3.1
50 Leonis . .	7		25 26.9	1 59.60	1.21	— 1.42	+ 17 13 24.0	36.2	— 1.7
	6		28 10.5	1 59.61	2.51	+ 1.40	+ 32 47 34.4	17.0	+ 2.7
a)	7		33 42.2	1 59.62	3.54	+ 1.44	+ 42 12 44.6	6.8	+ 4.5
	6.7		37 1.7	1 59.62	1.78	— 0.52	+ 24 31 4.0	0 26.6	+ 0.2
	7		39 14.0	1 59.63	0.14	— 0.13	+ 2 8 47.6	1 2.3	— 1.0
	6.7		50 12.7	1 59.65	1.98	+ 0.15	+ 26 54 15.0	0 23.7	+ 1.0
	7.8		51 50.4	1 59.65	1.93	— 0.01	+ 26 20 21.2	24.4	+ 0.8
	6.7		55 23.6	1 59.66	1.29	— 1.35	+ 18 21 2.2	34.7	— 1.5
	6		10 59 42.5	1 59.67	2.69	+ 1.36	+ 34 35 21.3	15.0	+ 3.0
	6		11 5 9.8	1 59.68	2.90	+ 1.29	+ 36 38 10.5	12.8	+ 3.4
	7		7 52.2	1 59.68	3.46	+ 1.39	+ 41 34 56.0	7.5	+ 4.4
	6		9 1.5	1 59.69	3.43	+ 1.38	+ 41 19 30.8	7.8	+ 4.3
	6.7		14 6.0	1 59.70	4.09	+ 2.52	+ 46 20 17.0	2.6	+ 5.3
	5.7		14 14.5	1 59.70	4.04	+ 2.40	+ 46 1 56.3	2.9	+ 5.3
	7		20 3.0	1 59.71	3.04	+ 1.27	+ 37 55 33.0	11.4	+ 3.7
	5.6		20 33.0	1 59.71	3.05	+ 1.27	+ 37 58 44.0	11.4	+ 3.7
59 Ursæ Maj.	6		24 55.0	1 59.72	2.70	+ 1.94	+ 44 47 15.4	4.0	+ 3.1
62 " . .	6		28 25.2	1 59.73	2.53	+ 1.40	+ 32 54 39.5	16.8	+ 2.7
	7		30 17.9	1 59.73	2.53	+ 1.40	+ 32 55 51.4	16.8	+ 2.7
	7		33 55.9	1 59.74	1.81	— 0.41	+ 24 53 25.8	26.2	+ 0.4
	6		37 58.3	1 59.75	0.94	— 1.72	+ 13 27 12.0	41.9	— 2.0
	7.8		38 29.4	1 59.75	0.90	— 1.79	+ 12 58 56.7	0 42.7	— 2.0
	7.8		42 27.2	1 59.75	0.14	— 0.15	+ 2 16 47.1	1 2.2	+ 2.5
	7		45 16.3	1 59.76	0.32	— 0.59	+ 4 39 53.9	0 57.1	— 1.4
7 b Virginis .	6		11 47 0.0	+ 1 59.76	— 0.33	— 0.63	+ 4 50 16.0	— 0 56.8	— 1.4

1785 APRIL 29 Zero corr. = + 1′ 40″.8.

Name	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ — φ	Refr.	q′
33 Leon. Min.	4.5		10 17 32.4	+ 2 7.87	— 2.57	+ 1.40	+ 33 27 14.0	— 0 16.2	+ 2.8
47 ρ Leonis . .	4		19 25.6	2 7.87	0.71	— 3.95	+ 10 23 24.0	46.8	— 1.8
48 " . .	6		21 30.2	2 7.87	0.55	— 1.37	+ 8 2 16.0	50.7	— 1.7
	8.9		22 45.7	2 7.88	0.56	— 1.40	+ 8 7 58.0	50.5	— 1.7
456 Mayer . .	7.8		25 18.1	2 7.89	1.21	— 1.42	+ 17 13 20.9	36.2	— 1.7
b) 42 Leon. Min.	6.5		28 1.8	2 7.89	2.51	+ 1.40	+ 32 47 35.4	16.9	+ 2.7
	7		33 35.0	2 7.90	3.54	+ 1.44	+ 42 12 44.0	6.9	+ 4.5
	7.8		33 56.3	2 7.90	3.54	+ 1.45	+ 42 15 47.0	6.9	+ 4.5
	7.8		41 31.8	2 7.92	0.48	— 1.14	+ 6 58 20.4	52.6	— 1.6
47 Ursæ Maj.	8		45 18.3	2 7.93	3.45	+ 1.39	+ 41 32 52.4	7.5	+ 4.4
	7.8		49 21.9	2 7.93	3.96	+ 2.16	+ 45 27 40.0	3.5	+ 5.2
	8		51 28.2	2 7.94	3.96	+ 2.15	+ 45 25 51.0	3.5	+ 5.2
	7		52 30.5	2 7.95	3.93	+ 2.08	+ 45 14 43.1	3.7	+ 5.1
	6		55 23.4	2 7.96	2.99	+ 1.27	+ 37 26 46.6	11.9	+ 3.6
	7		10 58 43.7	2 7.97	2.94	+ 1.28	+ 36 57 46.6	12.4	+ 3.5
	7.8		11 4 30.3	2 7.98	3.69	+ 1.57	+ 43 27 44.7	5.6	+ 4.8
	8		6 32.3	2 7.98	4.06	+ 2.45	+ 46 8 43.8	2.8	+ 5.3
56 Ursæ Maj.	6		8 55.0	2 7.99	3.85	+ 1.84	+ 44 37 51.2	3.8	+ 5.0
	7		12 48.2	2 7.99	2.69	+ 1.36	+ 34 36 14.0	15.0	+ 3.0
c) 57 " . .	6		11 15 23.2	+ 2 8.00	— 3.33	+ 1.33	+ 40 29 28.0	— 0 8.7	+ 4.2

a ζ assumed as 6° 38′ 21″; not 6° 38′ 51″. b T. I assumed as 34s.5.; not 31s.5. c ζ assumed as 8° 21′ 36″; not 8° 21′ 46″.

1785 APRIL 29—Continued Zero corr. = + 1′ 40″.8.

Name.	Mag.	T	App. sid. time	Clock corr.	n tan δ	q	ζ − φ	Refr.	q′
			h m s	m s	s	s	° ′ ″	′ ″	″
	6.7		11 16				+ 44 19 23.0	− 0 4.7	+ 4.9
	7		20 24.2	+ 2 8.01	− 3.05	+ 1.27	+ 37 58 42.2	11.3	+ 3.7
62 Ursæ Maj.	6		28 16.7	2 8.03	2.52	+ 1.40	+ 32 54 36.9	16.8	+ 2.7
	7		30 9.3	2 8.04	2.52	+ 1.40	+ 32 55 49.0	16.8	+ 2.7
	7		32 2.6	2 8.04	1.08	− 1.53	+ 15 26 10.2	38.9	− 1.9
93 Leonis . .	5		34 49.2	2 8.04	1.53	− 1.09	+ 21 23 29.0	30.6	− 0.7
	6.7		38 28.5	2 8.05	3.19	+ 1.28	+ 39 13 57.4	10.0	+ 3.9
	7		41 48.0	2 8.06	4.28	+ 2.93	+ 47 38 35.0	1.2	+ 5.5
	7		41 54.2	2 8.06	4.28	+ 2.93	+ 47 38 14.0	1.2	+ 5.5
	7		46 49.4	2 8.06	2.75	+ 1.33	+ 35 12 11.8	14.3	+ 3.1
	7.6		50 41.8	2 8.07	0.46	− 1.09	+ 6 44 34.5	53.2	− 1.6
	10.11		54 58.0	2 8.07	0.49	− 1.20	+ 7 13 0.4	0 52.4	− 1.6
10 r Virginis .	6.7		56 35.0	2 8.08	0.21	− 0.30	+ 3 5 27.0	1 0.6	− 1.2
	7		11 58 36.2	2 8.09	0.35	− 0.73	+ 5 14 12.2	0 56.1	− 1.4
	8.9		12 3 51.2	2 8.09	3.36	+ 1.35	+ 40 45 35.2	8.4	+ 4.3
	7		12 7 52.2	+ 2 8.10	− 1.17	− 1.45	+ 16 42 55.0	− 0 37.1	− 1.7

CATALOGUE OF STARS

OBSERVED BY

D'AGELET.

CATALOGUE.

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1	Bessel, W.100,1	6.7	4 Sept. 28	0 0 56.6	+ 45.2	+22 16 33.0	+ 4 54.6	0 1 41.8	+22 21 27.6
2	“ . . .	7	4 Sept. 30	0 56.3	45.2	22 16 34.0	4 54.3	1 41.5	21 28.3
3	Piazzi 8 . . .	7.6	4 Oct. 6	0 57.7	45.2	27 25 4.4	4 53.4	0 1 42.9	+27 29 57.8
4	Lalande 84 . .	7.8	3 July 26	1 32.5	50.0	44 53 21.9	5 37.2	0 2 22.5	+44 58 59.1
5	“ . . .	6.7	3 July 27	1 32.7	50.0	44 53 23.2	5 37.0	2 22.7	59 0.2
6	88 Pegasi γ		3 July 19	2 7.0	50.0	13 58 49.6	5 29.6	0 2 57.0	+14 4 19.2
7	“ . . .		3 July 23	2 7.8	49.8	13 58 47.2	5 28.7	2 57.6	4 15.9
8	“ . . .		3 Aug. 17	2 7.7	49.3	13 58 53.0	5 23.9	2 57.0	4 16.9
9	“ . . .		3 Aug. 20	2 8.2	49.3	13 58 50.6	5 23.3	2 57.5	4 13.9
10	“ . . .		3 Aug. 21	2 8.0	49.2	13 58 53.9	5 23.1	2 57.2	4 17.0
11	“ . . .		3 Sept. 15	2 8.6	49.3	13 58 54.6	5 18.3	2 57.9	4 12.9
12*	“ . . .		4 Sept. 15	2 11.8	45.4	13 59 20.8	4 56.1	2 57.2	4 16.9
13	“ . . .		4 Sept. 16	2 11.9	45.3	13 59 18.5	4 56.0	2 57.2	4 14.5
14	“ . . .		4 Sept. 28	2 12.2	45.2	13 59 20.8	4 54.4	2 57.4	4 15.2
15*	“ . . .		4 Sept. 30	2 11.8	45.2	13 59 17.7	4 54.2	2 57.0	4 11.9
16	“ . . .		4 Oct. 2	2 12.0	45.2	13 59 23.0	4 54.1	2 57.2	4 17.1
17*	Bessel, W.181	7.6	4 Oct. 6	2 56.0	45.4	32 0 50.2	4 54.2	0 3 41.4	+32 5 44.4
18	89 Pegasi χ		4 Sept. 15	3 30.3	45.4	19 0 46.3	4 56.6	0 4 15.7	+19 5 42.9
19	Lalande 186,8	7	4 Sept. 17	3 58.8	45.5	30 20 42.3	4 57.4	0 4 44.3	+30 25 39.7
20	36 Piscium . .		3 July 27	5 28.6	49.7	7 2 13.6	5 25.5	0 6 18.3	+ 7 7 39.1
21	Lalande 221 . .	8	4 Sept. 28	5 33.8	45.6	35 26 9.1	4 55.1	0 6 19.4	+35 31 4.2
22	24 Andromedæ θ		3 July 23	5 51.0	50.4	37 28 34.8	5 35.8	0 6 41.4	+37 34 10.6
23	“ . . .		3 Aug. 20	5 51.3	49.8	37 28 46.9	5 28.3	6 41.1	34 15.2
24	“ . . .		3 Aug. 21	5 51.2	49.7	37 28 47.9	5 28.0	6 40.9	34 15.9
25	“ . . .		3 Sept. 15	5 51.7	49.2	37 28 52.0	5 20.8	6 40.9	34 12.8
26	“ . . .		4 Sept. 16	5 55.1	45.7	37 29 11.0	4 58.5	6 40.8	34 9.5
27*	“ . . .	6.5	4 Sept. 17	5 55.2	45.7	37 29 16.8	4 58.1	6 40.9	34 14.9
28	25 Andromedæ σ	5	4 Sept. 28	7 9.2	45.6	35 35 35.9	4 55.1	0 7 54.8	+35 40 31.0
29	“ . . .		4 Sept. 30	7 9.6	45.6	35 35 34.1	4 54.7	7 55.2	40 28.8
30	Bessel, W.180 .	4	3 July 26	7 10.3	49.8	10 0 18.5	5 26.5	0 8 0.1	+10 5 45.0
31	“ . . .	5.6	3 July 27	7 9.9	49.8	10 0 18.8	5 26.4	7 59.7	5 45.2
32	26 Andromedæ .	7	4 Sept. 15	7 25.8	45.9	42 35 45.8	4 59.3	0 8 11.7	+42 40 45.1
33*	“ . . .		4 Sept. 16	7 26.1	45.9	42 35 46.7	4 59.3	8 12.0	40 46.0
34	Lalande 323 . .	7	3 Aug. 20	8 22.8	49.9	39 31 43.0	5 28.5	0 9 12.7	+39 37 11.5
35	“ . . .	7	3 Aug. 21	8 23.4	49.8	39 31 43.5	5 28.2	9 13.2	37 11.7
36	“ . . .	7	4 Sept. 17	8 27.2	45.9	39 32 13.8	4 58.3	9 13.1	37 12.1
37	“ . . .	7	4 Sept. 26	8 27.4	45.8	39 32 16.4	4 56.0	9 13.2	37 12.4
38	Lalande 367 . .	6	4 Oct. 6	9 34.1	45.7	31 43 13.9	4 53.2	0 10 19.8	+31 48 7.1
39	Lalande 375 . .	7	4 Sept. 28	9 51.5	45.3	9 47 3.2	4 54.0	0 10 36.8	+ 9 51 57.2
†40		7	4 Sept. 30	9 51.7	45.3	9 45 49.5	4 53.8	0 10 37.0	+ 9 50 43.3
41	27 Andromedæ ρ		3 July 23	9 47.0	50.7	36 45 56.5	5 35.4	0 10 37.7	+36 51 31.9
42	“ . . .		3 Sept. 15	9 48.4	49.4	36 46 14.5	5 20.6	10 37.8	51 35.1
43	“ . . .	6.5	4 Sept. 15	9 51.0	46.0	36 46 37.9	4 58.4	10 37.0	51 36.3
44	“ . . .	6	4 Sept. 16	9 51.1	46.0	36 46 33.7	4 58.2	10 37.1	51 31.9
45	Lalande 418 . .	8	4 Oct. 8	11 36.8	45.7	28 15 47.8	4 52.6	0 12 22.5	+28 20 40.4
46*	Johnson 81 . .	7	3 Aug. 20	11 38.1	50.2	43 19 21.0	5 29.2	0 12 28.3	+43 24 50.2
47	“ . . .	7.8	3 Aug. 21	11 38.5	50.2	43 19 20.7	5 28.8	12 28.7	24 49.5
48	Groombridge 57 .	6.7	3 Aug. 20	12 39.2	50.3	43 3 45.1	5 29.1	0 13 29.5	+43 9 14.2
49	“ . .	6.7	3 Aug. 21	12 39.6	50.3	43 3 52.2	5 28.7	13 29.9	9 20.9
50	“ . . .	8	3 Sept. 15	0 12 40.7	+ 49.8	+43 3 54.2	+ 5 21.3	0 13 30.5	+43 9 15.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
51	Piazzi 59 . . .	7.8	4 Sept. 16	0 13 25.5	+ 46.0	+30 10 55.0	+ 4 57.2	0 14 11.5	+30 15 52.2
52	" . . .	7	4 Sept. 17	13 25.8	46.0	30 10 57.3	4 56.9	14 11.8	15 54.2
53	" . . .	8.7	4 Sept. 28	13 25.5	45.9	+30 10 58.2	4 54.4	14 11.4	15 52.6
54	7 Mayer . . .	6.7	3 July 23	13 27.7	49.6	− 3 24 54.4	5 22.3	14 17.3	19 32.1
55	" . . .	6	4 Sept. 15	13 30.5	45.1	3 24 26.0	4 54.0	0 14 15.6	− 3 19 32.0
56	10 Ceti		3 July 26	15 32.5	49.6	1 14 50.0	5 22.1	0 16 22.1	− 1 9 27.9
57*	" . . .	6	4 Sept. 15	15 36.2	45.2	− 1 14 21.3	4 53.9	16 21.4	9 27.4
58	Bradley 30 . .	7	4 Sept. 28	16 22.4	45.6	+14 50 4.9	4 53.4	0 17 8.0	+14 54 58.3
59	" . . .	7	4 Sept. 30	16 22.4	45.6	14 50 1.0	4 53.2	17 8.0	54 54.2
60	Piazzi 74 . . .	6	3 Aug. 20	16 40.7	50.7	43 11 39.9	5 27.0	0 17 31.4	+43 17 6.9
61	" . . .	6.5	3 Aug. 21	16 41.2	50.7	43 11 44.6	5 26.7	17 31.9	17 11.3
62	" . . .	6	4 Sept. 16	16 44.4	46.6	43 12 9.1	4 58.7	17 31.0	17 7.8
63	" . . .	6	4 Sept. 17	16 45.4	46.6	43 12 16.1	4 58.4	17 32.0	17 14.5
64	" . . .	6	4 Sept. 26	16 44.5	46.5	43 12 17.8	4 55.8	17 31.0	17 13.6
65*	" . . .	7.8	4 Oct. 8	18 4.7	46.0	+27 38 17.9	4 52.0	0 18 50.7	+27 43 9.9
66	Bessel, W.366 .	7	4 Sept. 30	18 39.9	44.9	− 4 1 36.7	4 52.9	0 19 24.8	− 3 56 43.8
67	28 Andromedæ .		3 July 26	18 45.0	50.9	+28 33 23.2	5 31.1	0 19 35.9	+28 38 54.3
68	" . . .		3 July 27	18 45.1	50.8	28 33 22.7	5 31.0	19 35.9	38 53.7
69*	" . . .		3 Sept. 15	18 46.1	49.7	28 33 32.5	5 18.6	19 35.8	38 51.1
70	" . . .	6	4 Oct. 6	18 49.8	46.1	28 33 59.1	4 52.5	19 35.9	38 51.6
71	Flamsteed, B.30	7	4 Sept. 15	19 6.3	45.4	3 40 18.1	4 53.8	19 51.7	+ 3 45 11.9
72	Piazzi 93 . . .	7	3 Aug. 20	29 39.0	51.0	42 44 53.6	5 28.3	0 20 30.0	+42 50 21.9
73	" . . .	7	3 Aug. 21	19 38.7	50.9	42 44 55.0	5 28.0	20 29.6	50 23.0
74	Flamsteed, B.34	6	4 Sept. 17	20 3.8	46.4	32 23 40.4	4 56.5	0 20 50.2	+32 28 36.9
75	" . . .	6	4 Sept. 26	20 4.2	46.3	23 44.5	4 54.5	20 50.5	28 39.0
76	Lalande 742 . .	7.8	4 Sept. 16	20 40.0	45.9	+16 55 19.9	4 54.8	0 21 25.9	+17 0 14.7
77	Bessel, W.398	7.8	4 Sept. 30	20 42.0	45.0	− 2 58 52.1	4 52.7	0 21 27.0	− 2 53 59.4
78	Groombridge 84 .	8	3 Sept. 15	20 51.7	50.6	+42 17 57.3	5 20.4	0 21 42.3	+42 23 17.7
79	51 Piscium . .		3 July 26	21 14.9	49.9	5 45 40.7	5 23.4	0 22 4.8	+ 5 51 4.1
80*	" . . .		3 July 27	21 15.5	49.9	5 45 41.0	5 23.3	22 5.4	51 4.3
81	" . . .	7	3 Sept. 17	21 16.2	48.8	5 45 44.5	5 15.5	22 5.0	51 0.0
82	" . . .	6	4 Sept. 15	21 18.7	45.5	5 46 6.5	4 53.7	22 4.2	51 0.2
83	Lalande 849 . .	7	3 Sept. 15	23 39.5	50.4	35 38 25.6	5 19.0	0 24 29.9	+35 43 44.6
84	" . . .	6	4 Oct. 8	23 43.2	46.6	35 38 52.4	4 51.6	24 29.8	43 44.0
85	Piazzi 115	6.7	4 Sept. 17	23 48.6	45.7	12 11 14.8	4 53.7	0 24 34.3	+12 16 8.5
86	Johnson 149 . .	7	3 Aug. 20	24 2.7	50.8	47 49 33.2	5 29.0	0 24 53.5	+47 55 2.2
87	" . . .	6.7	3 Aug. 21	24 2.7	50.8	+47 49 32.4	5 28.6	24 53.5	55 1.0
88	14 Mayer . .	7.8	4 Sept. 28	24 31.7	45.0	− 1 41 14.4	4 52.0	0 25 16.7	− 1 36 22.4
89	" . . .	6.7	4 Sept. 30	24 31.4	45.0	− 1 41 12.1	4 52.0	25 16.4	36 20.1
90	Flamsteed, B.40	6	4 Sept. 17	24 48.6	45.7	+12 1 59.2	4 53.5	0 25 34.3	+12 6 52.7
91*	Piazzi 122 . .	7	4 Sept. 16	25 0.4	46.4	26 4 14.1	4 55.3	0 25 46.8	+26 9 9.4
92	18 (Hev.)Androm.	6.5	3 Aug. 21	25 5.7	51.5	43 17 32.6	5 27.4	0 25 57.2	+43 23 0.0
93	29 Andromedæ π		3 July 23	25 23.0	51.6	32 31 29.5	5 32.1	0 26 14.6	+32 37 1.6
94*	" . . .		3 July 26	25 22.7	51.5	32 31 32.7	5 31.3	26 14.2	37 4.0
95	" . . .		3 July 27	25 22.7	51.5	32 31 30.8	5 31.1	26 14.2	37 1.9
96	" . . .		3 Sept. 15	25 24.1	50.3	32 31 41.2	5 18.3	26 14.4	36 59.5
97	" . . .		3 Sept. 17	25 23.3	50.3	32 31 43.0	5 17.9	26 13.6	37 0.9
98	" . . .	4.5	4 Oct. 6	25 27.9	46.6	32 32 8.9	4 51.7	26 14.5	37 0.6
99	" . . .	4.5	4 Oct. 8	25 27.7	46.6	32 32 7.9	4 51.2	26 14.3	36 59.1
100*	53 Piscium . .	7	4 Sept. 15	25 36.6	45.9	+14 2 54.2	4 53.9	0 26 22.5	+14 7 48.1
101	15 Ceti . . .	7	4 Sept. 28	27 6.4	45.0	− 1 41 6.9	4 51.5	0 27 51.4	− 1 36 15.4
102	" . . .		4 Sept. 30	27 6.1	45.0	− 1 41 12.1	4 51.5	27 51.1	36 20.6
103	30 Andromedæ ε		3 Sept. 15	27 11.2	50.2	+28 8 11.2	5 17.4	0 28 1.4	+28 13 28.6
104	" . . .		3 Sept. 17	27 10.8	50.1	28 8 11.0	5 17.0	28 0.9	13 28.0
105	Groombridge 113	6	3 Aug. 20	27 17.8	52.2	48 9 37.1	5 28.6	0 28 10.0	+48 15 5.7
106	" . . .	6	3 Aug. 21	27 18.4	52.1	48 9 42.6	5 28.2	28 10.5	15 10.8
107	31 Andromedæ δ		3 July 26	27 48.4	51.5	29 40 27.0	5 30.0	0 28 39.9	+29 45 57.0
108	" . . .		3 July 27	27 48.8	51.4	29 40 24.3	5 29.8	28 40.2	45 54.1
109	" . . .		4 Sept. 15	27 52.7	46.8	29 41 0.1	4 55.6	28 39.5	45 55.7
110	" . . .		4 Sept. 16	0 27 52.8	+ 46.7	+29 40 55.0	+ 4 55.4	0 28 39.5	+29 45 50.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
111	31 Andromedæ δ	3	4 Oct. 6	0 27 53.5	+ 46.6	+29 41 3.7	+ 4 51.2	0 28 40.1	+29 45 54.9
112	54 Piscium . .	6	4 Oct. 8	28 13.3	46.1	20 5 24.5	4 50.6	0 28 59.4	+20 10 15.1
113	" . . .	6	4 Oct. 15	28 13.1	46.0	20 5 28.5	4 49.8	28 59.1	10 18.3
114	55 Piscium . .	6	4 Sept. 17	28 38.4	46.2	20 15 27.4	4 53.7	0 29 24.6	+20 20 21.1
115	" . . .	6	4 Oct. 15	28 38.5	46.0	20 15 35.5	4 49.8	29 24.5	20 25.3
116	32 Andromedæ .		3 July 26	29 25.9	52.4	38 16 4.1	5 32.3	0 30 18.3	+38 21 36.4
117	" . . .	6	3 Aug. 21	29 27.9	51.5	38 16 5.7	5 25.4	30 19.4	21 31.1
118	Piazzi 145 . .	7.8	4 Oct. 8	29 43.3	46.1	+19 50 25.6	4 50.4	0 30 29.4	+19 55 16.0
119	16 Mayer . .	6	4 Sept. 30	29 46.6	44.8	— 5 31 55.8	4 50.8	0 30 31.4	— 5 27 5.0
120	Piazzi 148 . .	7	4 Sept. 17	30 13.7	46.5	+23 27 0.3	4 53.8	0 31 0.2	+23 31 54.1
121	" . . .	7	4 Oct. 6	30 15.1	46.3	23 26 58.4	4 50.6	31 1.4	31 49.0
122	33 Andromedæ .		3 Sept. 15	30 59.7	51.2	40 5 12.7	5 18.5	0 31 50.9	+40 10 31.2
123	Lalande 1113,4 .	8.9	3 Sept. 17	31 1.4	50.2	26 27 17.8	5 11.8	0 31 51.6	+26 32 29.6
124	Lalande 1125 .	7.8	4 Oct. 9	31 41.1	45.9	15 29 15.8	4 50.0	0 32 27.0	+15 34 5.8
125	" . . .	6	4 Oct. 15	31 40.0	45.9	15 29 18.3	4 49.4	32 25.9	34 7.7
126	Lalande 1149 .	7.8	3 Aug. 20	32 17.5	51.2	32 7 21.4	5 23.6	0 33 8.7	+32 12 45.0
127	" . . .	7.8	3 Aug. 21	32 17.9	51.2	+32 7 19.1	5 23.3	33 9.1	12 42.4
128	16 Ceti β		4 Sept. 15	32 48.0	44.0	—19 9 59.0	4 49.5	0 33 32.0	—19 5 9.5
129	" . . .		4 Sept. 16	32 48.0	44.0	—19 9 57.0	4 49.6	33 32.0	5 7.4
130	Lalande 1191 .	9	4 Sept. 28	33 52.2	46.4	+22 24 43.9	4 51.2	0 34 38.6	+22 29 35.1
131	Groombridge 140	6	3 Sept. 15	34 18.1	51.9	43 40 38.2	5 18.5	0 35 10.0	+43 45 56.7
132	" . . .	6.7	3 Sept. 17	34 17.7	51.8	43 40 40.1	5 18.0	35 9.5	45 58.1
133	" . . .	7	4 Sept. 17	34 21.2	48.2	43 41 5.4	4 56.2	35 9.4	46 1.6
134	57 Piscium . .	6	4 Oct. 7	35 20.4	45.9	14 18 7.6	4 49.5	0 36 6.3	+14 22 57.1
135	" . . .	6	4 Oct. 8	35 20.3	45.9	14 18 6.6	4 49.2	36 6.2	22 55.8
136	" . . .	6	4 Oct. 9	35 20.4	45.9	14 18 7.2	4 49.2	36 6.3	22 56.4
137	58 Piscium . .	6	4 Oct. 15	35 50.3	45.7	10 48 1.2	4 48.8	0 36 35.0	+10 52 50.0
138	59 Piscium . .	6	3 Aug. 20	35 49.8	50.2	18 23 37.8	5 19.2	0 36 40.0	+18 28 57.0
139	" . . .	6.7	3 Aug. 21	35 50.2	50.2	18 23 41.4	5 19.0	0 36 40.4	+18 29 0.4
140	34 Andromedæ ζ		3 July 26	35 54.7	51.4	23 5 15.6	5 26.0	0 36 46.1	+23 10 41.6
141	" . . .	5	4 Sept. 28	35 59.4	46.6	23 5 42.3	4 50.7	36 46.0	10 33.0
142	" . . .	4	4 Sept. 30	35 59.6	46.6	23 5 44.1	4 50.4	36 46.2	10 34.5
143	Groombridge 149	8.9	3 Sept. 17	36 37.8	52.0	43 47 30.3	5 17.4	0 37 29.8	+43 52 47.7
144	63 Piscium δ		3 July 23	37 28.8	50.3	6 24 22.1	5 20.7	0 38 19.1	+ 6 29 42.8
145	" . . .		4 Sept. 15	37 34.2	45.7	6 24 51.7	4 50.5	38 19.9	29 42.2
146	" . . .		4 Sept. 16	37 32.7	45.6	6 24 50.2	4 50.4	38 18.3	29 40.6
147	" . . .	4	4 Oct. 15	37 33.4	45.4	6 24 53.3	4 49.6	38 18.8	29 42.9
148	64 Piscium . .	6	3 Aug. 21	37 38.8	50.2	15 46 16.4	5 17.8	0 38 29.0	+15 51 34.2
149	" . . .	6.7	4 Oct. 6	37 43.7	46.1	15 46 46.7	4 49.0	38 29.8	51 35.7
150	" . . .	6	4 Oct. 8	37 43.2	46.1	46 46.0	4 48.7	38 29.3	51 34.7
151	" . . .	6	4 Oct. 9	37 43.2	46.1	46 46.2	4 48.6	38 29.3	51 34.8
152	35 Andromedæ ν		3 July 26	37 56.6	53.0	39 53 42.9	5 31.1	0 38 49.6	+39 59 14.0
153	65 Piscium i		4 Sept. 28	38 23.3	46.9	26 32 15.7	4 50.5	0 39 10.2	+26 37 6.2
154	Piazzi 196 . .	7	3 Sept. 15	38 19.2	52.2	43 49 13.3	5 17.7	0 39 11.4	+43 54 31.0
155	" . . .	7	3 Sept. 17	38 18.9	52.2	43 49 18.9	5 17.1	39 11.1	54 36.0
156	" . . .	7.8	4 Sept. 17	38 22.7	48.5	43 49 39.5	4 55.4	39 11.2	54 34.9
157	Lalande 1414 .	7	3 Aug. 20	40 14.9	51.8	32 42 46.7	5 21.9	0 41 6.7	+32 48 8.6
158	" . . .	7.8	3 Aug. 21	40 15.4	51.8	32 42 45.5	5 21.6	41 7.2	48 7.1
159	Piazzi 208 . .	8.9	4 Oct. 15	40 21.5	45.8	11 36 49.9	4 47.7	0 41 7.3	+11 41 37.6
160	Lalande 1464 .	7	4 Sept. 17	41 42.7	48.0	36 15 3.9	4 53.5	0 42 30.7	+36 19 57.4
161	" . . .	7	4 Sept. 30	41 43.7	47.8	36 15 2.4	4 50.3	42 31.5	19 52.7
162	" . . .	6.7	4 Oct. 6	41 43.8	47.8	36 15 9.5	4 49.0	42 31.6	19 58.5
163	" . . .	6.7	4 Oct. 8	41 43.6	47.8	36 15 4.8	4 48.4	42 31.4	19 53.2
164	Bessel, W.1179 .	8	4 Sept. 15	42 4.0	47.4	28 19 26.4	4 52.5	0 42 51.4	+28 24 18.9
165	" . . .	7.8	4 Sept. 16	42 4.1	47.4	28 19 19.2	4 52.3	42 51.5	24 11.5
166	25 Mayer . .	8	3 Sept. 15	42 13.4	48.9	2 54 48.5	5 10.5	0 43 2.3	+ 2 59 59.0
167	" . . .	8	3 Sept. 17	42 13.2	48.8	2 54 48.6	5 10.4	43 2.0	59 59.0
168	Groombridge 171	6.7	3 Aug. 20	42 53.8	53.8	47 30 4.8	5 23.8	0 43 47.6	+47 35 28.6
169	" . . .	6.7	3 Aug. 21	42 53.7	+ 53.8	47 30 5.4	5 23.5	43 47.5	35 28.9
170	66 Piscium . .	6	4 Oct. 8	0 43		+18 1 17.3	+ 4 47.6	0 44	+18 6 4.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
171	66 Piscium . .	6	4 Oct. 9	0 43 14.9	+ 46.4	+18 1 17.9	+ 4 47.4	0 44 1.3	+18 6 5.3
172*	" . . .	6	4 Oct. 15	43 14.7	46.3	18 1 18.4	4 46.8	44 1.0	6 5.2
173	36 Andromedæ .		4 Sept. 15	43 29.8	47.0	22 27 43.3	4 51.3	0 44 16.8	+22 32 34.6
174	37 Andromedæ μ		3 July 26	44 48.2	53.4	37 19 13.3	5 28.2	0 45 41.6	+37 24 41.5
175	" . . .		3 July 27	44 48.4	53.3	37 19 12.5	5 28.0	45 41.7	24 40.5
176	" . . .		4 Sept. 16	44 52.7	48.3	37 19 47.0	4 53.2	45 41.0	24 40.2
177	" . . .		4 Sept. 17	44 58.0	48.3	37 19 49.2	4 52.9	45 41.3	24 42.1
178	" . . .		4 Sept. 28	44 53.4	48.2	37 19 47.0	4 50.1	45 41.6	24 37.1
179	" . . .		4 Sept. 30	44 53.2	48.2	37 19 51.3	4 49.7	45 41.4	24 41.0
180	" . . .	4.3	4 Oct. 6	44 53.3	48.1	37 19 55.4	4 48.3	45 41.4	24 43.7
181	38 Andromedæ η	4	4 Oct. 2	45 46.2	46.8	22 15 16.5	4 47.8	0 46 33.0	+22 20 4.3
182	" . . .	6	4 Oct. 15	45 45.9	46.7	22 15 23.4	4 46.0	46 32.6	20 9.4
183	68 Piscium h	6	4 Oct. 8	46 15.3	47.3	27 49 43.3	4 47.0	0 47 2.6	+27 54 30.3
184	" . . .	6	4 Oct. 9	46 15.3	47.3	27 49 45.3	4 46.8	47 2.6	54 32.1
185	Lalande 1634 .	6.7	3 Aug. 20	46 12.7	52.8	38 18 9.2	5 21.7	0 47 5.5	+38 23 30.9
186	" . . .	7	3 Aug. 21	46 13.1	52.8	38 18 12.1	5 21.4	47 5.9	23 33.5
187	29 Mayer . .	7.8	3 Sept. 15	47 8.7	49.1	5 40 31.7	5 9.3	0 47 57.8	+ 5 45 41.0
188	" . . .	7.8	3 Sept. 17	47 8.6	49.1	5 40 29.2	5 9.1	47 57.7	45 38.3
†189			4 Sept. 16	47		43 33 36.9	4 49.5	0 48	+43 38 26.4
190	Struve C. G. 75 .	6.7	4 Sept. 17	47 57.8	49.3	43 33 4.9	4 53.2	0 48 47.1	+43 37 58.1
191	30 Mayer . .	7	4 Oct. 6	48 43.0	45.5	5 19 21.5	4 46.0	0 49 28.5	+ 5 24 7.5
192	" . . .	7	4 Oct. 8	48 42.6	45.5	5 19 19.8	4 45.8	49 28.1	24 5.6
193	Lalande 1706,7 .	9	4 Oct. 15	48 40.3	48.2	36 37 46.9	4 45.3	0 49 28.5	+36 42 32.2
194	Lalande 1783 .	6	3 Aug. 20	50 40.6	54.2	46 12 34.6	5 22.5	0 51 34.8	+46 17 57.1
195	" . . .	7	3 Aug. 21	50 40.1	54.2	46 12 30.6	5 22.2	51 34.3	17 52.8
196	" . . .	7.8	4 Sept. 16	50 44.9	49.9	46 12 58.0	4 53.3	51 34.8	17 51.3
197	39 Andromedæ .	7	4 Sept. 28	50 54.0	48.9	40 11 5.5	4 48.9	0 51 42.9	+40 15 54.4
198	" . . .	7	4 Sept. 30	50 53.8	48.9	40 11 9.4	4 48.4	51 42.7	15 57.8
199	" . . .	6	4 Oct. 9	50 54.2	48.8	40 11 14.4	4 46.3	51 43.0	16 0.7
200	70 Piscium . .	9.10	3 Sept. 17	50 54.6	49.3	6 46 14.2	5 8.0	0 51 43.9	+ 6 51 22.2
201	69 Piscium σ	6	4 Sept. 15	51 6.0	48.1	30 38 53.3	4 50.6	0 51 54.1	+30 43 43.9
202	" . . .	6.7	4 Oct. 15	51 7.0	47.7	30 38 57.0	4 44.5	51 54.7	43 41.5
203	Lalande 1801,2 .	7.8	4 Oct. 2	51 16.1	47.3	25 8 21.4	4 46.4	0 52 3.4	+25 13 7.8
204	71 Piscium ε		3 July 26	51 44.2	50.5	6 43 25.2	5 15.8	0 52 34.7	+ 6 48 41.0
205	" . . .		3 July 27	51 44.3	50.4	6 43 18.5	5 15.5	52 34.7	48 34.0
206	" . . .		3 Sept. 15	51 45.5	49.3	6 43 27.7	5 7.9	52 34.8	48 35.6
207	" . . .		3 Sept. 17	51 45.4	49.3	6 43 29.2	5 7.7	52 34.7	48 36.9
208	" . . .	4	4 Oct. 6	51 49.0	45.6	6 43 53.1	4 45.0	52 34.6	48 38.1
209	" . . .	4	4 Oct. 8	51 49.0	45.6	6 43 50.9	4 44.8	52 34.6	48 35.7
210	Groombridge 232	8.9	4 Sept. 28	52 35.5	48.9	38 50 7.3	4 48.3	0 53 24.4	+38 54 55.6
211	Flamsteed, B.103	7	4 Oct. 2	52		28 30 35.3	4 46.8	0 53	+28 35 22.1
212	" . . .	7	4 Oct. 15	52 45.8	47.6	28 30 37.1	4 44.0	53 33.4	35 21.1
213	73 Piscium . .	6	4 Oct. 6	53 46.2	45.4	4 30 7.4	4 44.3	0 54 31.6	+ 4 34 51.7
214	74 Piscium ψ¹ pr.	6	4 Oct. 9	54 12.0	46.9	20 19 11.5	4 44.2	0 54 58.9	+20 23 55.7
215	" ψ¹ foll.	6	4 Oct. 9	54 13.1	46.9	20 18 47.7	4 44.2	0 55 0.0	+20 23 31.9
216	77 Piscium pr. .	7.8	3 Sept. 17	54 39.5	49.0	3 45 25.0	5 6.4	0 55 28.5	+ 3 50 31.6
217	" foll. .	7.8	3 Sept. 17	54 42.2	49.0	3 45 23.8	5 6.4	55 31.2	50 30.2
218	Piazzi 285 . .	7	3 Aug. 20	54 42.0	55.2	48 23 36.9	5 21.8	0 55 37.2	+48 28 58.7
219	" . . .	7	3 Aug. 21	54 42.5	55.2	48 23 32.4	5 21.5	55 37.7	28 53.9
220	" . . .	7	4 Sept. 30	54 46.4	50.4	48 24 5.0	4 48.4	55 36.8	28 53.4
221	41 Andromedæ .		4 Sept. 28	55 44.8	49.7	42 47 32.7	4 47.9	0 56 34.5	+42 52 20.6
222	78 Piscium . .	6.7	4 Oct. 2	56 11.6	48.1	30 51 42.1	4 45.5	0 56 59.7	+30 56 27.6
223	" . . .	7	4 Oct. 15	56 11.0	48.0	30 51 44.3	4 43.0	56 59.0	56 27.3
224	79 Piscium ψ²	6	4 Oct. 8	56 28.3	46.9	19 35 37.9	4 43.6	0 57 15.2	+19 40 21.5
225	" . . .	6	4 Oct. 9	56	46.9	19 35 39.0	4 43.5	57	40 22.5
226	42 Andromedæ φ		4 Sept. 30	57 7.5	50.3	46 5 26.1	4 47.4	0 57 57.8	+46 10 13.5
227	80 Piscium e	5.6	4 Oct. 6	57 19.7	45.5	4 30 35.2	4 43.1	0 58 5.2	+ 4 35 18.3
228	43 Andromedæ β		3 July 26	57 40.3	53.9	34 28 4.8	5 22.9	0 58 34.2	+34 33 27.7
229	" . . .		3 July 27	57 40.5	53.9	34 28 4.0	5 22.7	58 34.4	33 26.7
230	" . . .		4 Sept. 28	0 57 46.2	+ 48.7	+34 28 36.5	+ 4 46.2	0 58 34.9	+34 33 22.7

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
231	43 Andromedæ β		4 Oct. 2	0 (57)		+34 28 41.5	+ 4 45.3	0(58)	+34 33 26.8
232	82 Piscium g	6	4 Oct. 9	59 19.2	+ 48.1	30 16 45.1	4 43.1	1 0 7.3	+30 21 28.2
233	“ . . .	6.5	4 Oct. 15	59 19.1	48.1	30 16 43.3	4 42.0	0 7.2	21 25.3
234	83 Piscium τ	5	4 Oct. 8	0 59 52.9	48.0	28 56 51.0	4 42.9	1 0 40.9	+29 1 33.9
235	Piazzi 9 . . .	6	3 Aug. 20	1 0 7.8	55.0	44 10 49.6	5 18.7	1 1 2.8	+44 16 8.3
236	“ . . .	6.7	3 Aug. 21	0 7.4	55.0	44 10 53.1	5 18.7	1 2.4	16 11.8
237	“ . . .	6	4 Sept. 30	0 12.1	50.2	44 11 21.0	4 46.2	1 2.3	16 7.2
238	Piazzi 11 . . .	6	4 Oct. 8	1 12.6	48.1	28 55 19.0	4 42.5	1 2 0.7	+29 0 1.5
239	Lalande 2154 .	6.7	4 Oct. 6	1 21.4	48.6	32 57 19.4	4 43.1	1 2 10.0	+33 2 2.5
240	85 Piscium φ		4 Sept. 15	2 6.3	47.8	23 26 33.3	4 45.6	1 2 54.1	+23 31 18.9
241	“ . . .	6.5	4 Oct. 2	2 6.9	47.5	23 26 33.6	4 42.7	2 54.4	31 16.3
242	“ . . .	6	4 Oct. 9	2 7.3	47.5	23 26 32.6	4 41.7	2 54.8	31 14.3
243	Anonyma . .	7	4 Oct. 8	2 19.5	47.9	27 23 25.7	4 42.0	1 3 7.4	+27 28 7.7
244	40 Mayer . .		3 Sept. 17	2 30.2	49.4	6 25 48.5	5 3.6	1 3 19.6	+ 6 30 52.1
245	87 Piscium . .	6	4 Oct. 15	2		14 59 36.3	4 40.5	1 3	+15 4 16.8
246*	Piazzi 26 . . .	6.7	3 Aug. 20	3 45.7	55.9	46 55 56.4	5 18.0	1 4 41.6	+47 1 14.4
247	“ . . .	7	3 Aug. 21	3 45.5	55.8	46 55 57.3	5 17.8	4 41.3	1 15.1
248	“ . . .	7.8	4 Sept. 28	3 50.0	51.0	46 56 28.1	4 45.8	4 41.0	1 13.9
249	“ . . .	7	4 Sept. 30	3 49.6	51.0	46 56 22.8	4 45.3	4 40.6	1 8.1
250	Piazzi 29 . . .	6.7	4 Oct. 6	4 24.2	48.6	31 58 40.6	4 42.0	1 5 12.8	+32 3 22.6
251	Lalande 2270 .	7.8	4 Oct. 2	4 51.5	47.5	22 27 4.9	4 41.6	1 5 39.0	+22 31 46.5
252	Piazzi 30 . . .	9	4 Oct. 15	5 16.7	47.1	19 55 8.6	4 39.6	1 6 3.8	+19 59 48.2
253	Lalande 2292,3 .	7	4 Sept. 15	5 31.8	48.8	30 36 22.3	4 45.8	1 6 20.6	+30 41 8.1
254	Piazzi 31 . . .	7.8	4 Sept. 28	5 35.3	51.1	46 16 49.5	4 45.2	1 6 26.4	+46 21 34.7
255	“ . . .	7.8	4 Sept. 30	5 35.8	51.0	46 16 53.1	4 44.6	6 26.8	21 37.7
256	Lalande 2330 .	6	3 Aug. 20	6 34.6	54.0	36 14 32.2	5 13.9	1 7 28.6	+36 19 46.1
257	“ . . .	6.7	3 Aug. 21	6 35.3	54.0	36 14 32.4	5 13.7	7 29.3	19 46.1
258	“ . . .	7	4 Oct. 6	6 40.3	49.4	36 15 6.7	4 41.5	7 29.7	19 48.2
259	89 Piscium f		3 Sept. 17	6 40.4	49.0	2 28 29.8	5 1.2	1 7 29.4	+ 2 33 31.0
260	“ . . .	6	4 Oct. 9	6 44.4	45.3	2 28 50.8	4 39.4	7 29.7	33 30.2
261	90 Piscium υ	6	4 Oct. 2	7 41.6	48.1	26 7 53.7	4 40.9	1 8 29.7	+26 12 34.6
262	“ . . .	5	4 Oct. 8	7 42.3	48.0	26 7 50.2	4 39.9	8 30.3	12 30.1
263	“ . . .	6	4 Oct. 15	7 42.2	48.0	26 7 53.7	4 38.9	8 30.2	12 32.6
264	91 Piscium l	6	4 Sept. 28	9 17.0	48.4	27 36 38.2	4 41.1	1 10 5.4	+27 41 19.3
265	“ . . .	6	4 Sept. 30	9 17.4	48.4	27 36 39.6	4 40.8	10 5.8	41 20.4
266	“ . . .	6	4 Oct. 15	9	48.2	27 36 46.0	4 38.1	10	41 24.1
267	Piazzi 50 . . .	7.8	4 Oct. 6	9 45.8	50.6	42 27 16.7	4 41.1	1 10 36.4	+42 31 57.8
268	46 Andromedæ ξ	4.5	3 Aug. 20	9 41.8	55.9	44 23 16.3	5 14.9	1 10 37.7	+44 28 31.2
269	“ . . .		3 Aug. 21	9 42.0	55.8	44 23 18.0	5 14.6	10 37.8	28 32.6
270	“ . .		3 Sept. 17	9 41.8	55.2	44 23 29.1	5 7.2	10 37.0	28 36.3
271	Lalande 2446,8 .	8.9	4 Oct. 9	10 36.6	46.7	14 39 46.4	4 38.1	1 11 23.3	+14 44 24.5
272	Piazzi 56 . . .	7	4 Sept. 28	11 29.8	49.3	33 6 38.5	4 41.2	1 12 19.1	+33 11 19.7
273	“ . . .	7	4 Sept. 30	11 30.1	49.2	33 6 38.7	4 40.7	12 19.3	11 19.4
274	Piazzi 61 . . .	7.8	3 Aug. 20	11 46.1	55.6	42 0 21.5	5 13.3	1 12 41.7	+42 5 34.8
275	“ . . .	7.8	3 Aug. 21	11 46.2	55.5	42 0 22.2	5 13.1	12 41.7	5 35.3
276	92 Piscium . .	7	4 Oct. 8	12 20.5	47.0	16 41 42.8	4 37.5	1 13 7.5	+16 46 20.3
277	“ . . .	7	4 Oct. 9	12 20.1	47.0	16 41 44.0	4 37.4	13 7.1	46 21.4
278	Piazzi 70 . . .	7.8	4 Sept. 28	13 58.4	49.5	33 27 36.6	4 40.1	1 14 47.9	+33 32 16.7
279	“ . . .	7.8	4 Sept. 30	13 58.4	49.4	33 27 41.0	4 39.7	1 14 47.8	+33 32 20.7
280	“ . . .	6.7	4 Oct. 6	13 58.4	49.4	33 27 43.8	4 38.5	14 47.8	32 22.3
281	93 Piscium ρ		3 Aug. 20	14 38.0	51.7	18 2 27.7	5 5.0	1 15 29.7	+18 7 32.7
282	“ . . .		3 Aug. 21	14 38.2	51.6	18 2 30.4	5 4.8	15 29.8	7 35.2
283	“ . . .	5	4 Oct. 8	14 42.9	47.2	18 2 56.3	4 36.5	15 30.1	7 32.8
284*	“ . . .	6	4 Oct. 15	14 42.4	47.2	18 3 5.3	4 35.8	15 29.6	7 41.1
285	48 Andromedæ ω		3 Sept. 17	14 48.0	55.6	44 17 5.1	5 5.1	1 15 43.6	+44 22 10.2
286	Lalande 2604 .	7.8	4 Sept. 28	14 57.1	49.5	33 15 23.3	4 39.7	1 15 46.6	+33 20 3.0
287	“ . . .	7.8	4 Sept. 30	14 56.9	49.4	33 15 25.5	4 39.3	15 46.3	20 4.8
288	“ . . .	6.7	4 Oct. 6	14 57.8	49.4	33 15 28.3	4 38.1	15 47.2	20 6.4
289*	94 Piscium . .	6	4 Oct. 15	15 7.7	47.2	18 7 27.7	4 35.6	1 15 54.9	+18 12 3.3
290	95 Piscium . .	7	4 Oct. 9	1 16 32.1	+ 45.5	+ 4 14 31.4	+ 4 35.1	1 17 17.6	+ 4 19 6.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
291	49 Andromedæ *A*	6	4 Sept. 28	1 17 18.9	+ 52.0	+45 53 29.3	+ 4 40.6	1 18 10.9	+45 58 9.9
292	" . . .	6	4 Sept. 30	17 19.1	52.0	45 53 31.3	4 40.1	18 11.1	58 11.4
293	" . . .	6	4 Oct. 2	17 18.5	52.0	45 53 27.4	4 39.6	18 10.5	58 7.0
294	" . . .		4 Oct. 6	17 18.6	51.9	45 53 35.8	4 38.6	18 10.5	58 14.4
295	96 Piscium . .	7	4 Oct. 15	17 51.8	45.6	6 10 59.0	4 34.4	1 18 37.4	+ 6 15 33.4
296	97 Piscium . .	6	4 Sept. 16	18 18.7	47.5	17 14 20.1	4 37.8	1 19 6.2	+17 18 57.9
297	99 Piscium η		3 Aug. 20	19 56.7	51.3	14 13 33.7	5 1.3	1 20 48.0	+14 18 35.0
298	" . . .		3 Aug. 21	19 56.9	51.3	14 13 33.7	5 1.1	20 48.2	18 34.8
299	" . . .		3 Sept. 17	19 57.0	50.7	14 13 37.2	4 56.8	20 47.7	18 34.0
300	" . . .	4	4 Oct. 8	20 1.7	46.9	14 14 1.7	4 34.0	20 48.6	18 35.7
301	53 Mayer . . .	9	4 Oct. 15	20 22.0	46.2	9 46 42.2	4 33.2	1 21 8.2	+ 9 51 15.4
302	204 Bradley . .	8	4 Oct. 6	20 30.4	47.1	15 50 55.0	4 34.0	1 21 17.5	+15 55 29.0
303	Androm. 219*B* .	7	4 Oct. 2	20 33.1	50.0	34 44 1.4	4 36.7	1 21 23.1	+34 48 38.1
304	Lalande 2790,2 .	9	4 Oct. 9	21 9.5	45.4	2 34 33.4	4 32.9	1 21 54.9	+ 2 39 6.3
305	Lalande 2814 .	7	4 Oct. 2	21 38.1	50.0	34 30 0.7	4 36.1	1 22 28.1	+34 34 36.8
306	Piazzi 104 . .	6.7	4 Sept. 28	21 56.4	50.4	36 7 42.9	4 37.1	1 22 46.8	+36 12 20.0
307	" . . .		4 Sept. 30	21 55.9	50.4	36 7 42.5	4 36.6	22 46.3	12 19.1
308*	" . . .	7	4 Oct. 2	21		36 7 46.6	4 36.7	22	12 23.3
309	Piazzi 110 . .	7	3 Aug. 20	23 8.9	51.9	17 21 3.7	5 0.5	1 24 0.8	+17 26 4.2
310	" . . .	7	3 Aug. 21	23 8.7	51.8	17 21 5.9	4 59.5	24 0.5	26 5.4
311	" . . .	7.8	4 Oct. 6	23 13.6	47.4	17 21 31.9	4 32.9	24 1.0	26 4.8
312	" . . .	7	4 Oct. 15	23 13.6	47.3	17 21 34.7	4 32.0	24 0.9	26 6.7
313	Johnson 473 . .	7.8	3 Sept. 17	23 12.4	55.3	39 57 53.3	5 0.2	1 24 7.7	+40 2 53.5
314	55 Mayer . .	8	4 Oct. 9	23 38.2	46.0	7 10 20.1	4 31.8	1 24 24.2	+ 7 14 51.9
315*	Piazzi 118 . .	7	4 Oct. 8	24 19.1	46.8	13 33 29.5	4 31.8	1 25 5.9	+13 38 1.3
316	50 Andromedæ ν		3 Sept. 17	24 10.7	55.5	40 19 9.9	4 59.8	1 25 6.2	+40 24 9.7
317	" . . .		4 Sept. 16	24 15.0	51.6	40 19 23.0	4 39.6	25 6.6	24 2.6
318	" . . .		4 Sept. 30	24 15.1	51.3	40 19 28.0	4 36.2	25 6.4	24 4.2
319	" . . .	6.5	4 Oct. 2	24 15.4	51.3	40 19 28.5	4 35.8	25 6.7	24 4.3
320*	102 Piscium . π		3 Aug. 20	25 38.4	52.4	11 1 51.2	4 53.5	1 26 30.8	+11 6 44.7
321	" . . .	5	4 Oct. 9	25 44.5	46.5	11 2 19.6	4 31.0	26 31.0	6 50.6
322	" . . .	6	4 Oct. 15	25 44.4	46.5	11 2 16.2	4 30.6	26 30.9	6 46.8
323	57 Mayer . .	7.8	4 Oct. 9	26 16.7	46.5	10 59		1 27 3.2	+11 3
324	" . . .	7	4 Oct. 15	26 17.3	46.5	10 58 40.0	4 30.4	27 3.8	3 10.4
325	52 Andromedæ χ	6	4 Sept. 28	26 32.3	52.2	43 17 7.4	4 36.1	1 27 24.5	+43 21 43.5
326	" . . .	6	4 Sept. 30	26 32.5	52.2	43 17 7.4	4 35.7	27 24.7	21 43.1
327	" . . .	5.6	4 Nov. 17	26 33.1	51.8	43 17 22.6	4 25.0	27 24.9	21 47.6
328	Lalande 3023,4 .	7	3 Sept. 17	27 25.2	55.6	39 34 57.1	4 58.0	1 28 20.8	+39 39 55.1
329	" . . .	7	4 Sept. 16	27 29.4	51.7	39 35 12.2	4 38.1	28 21.1	39 50.3
330	104 Piscium . .	7	4 Oct. 8	27 47.1	46.9	13 11 26.0	4 30.1	1 28 34.0	+13 15 56.1
331	Bessel, W.714 .	8	4 Oct. 6	27 44.5	51.1	38 29 36.0	4 33.0	1 28 35.6	+38 34 9.0
332*	Groombridge 360	6	4 Sept. 28	27 51.4	52.0	42 12 9.1	4 35.4	1 28 43.4	+42 16 44.5
333	53 Andromedæ τ		3 Sept. 17	27 53.9	55.6	39 28 36.6	4 57.7	1 28 49.5	+39 33 34.3
334	" . . .	5	4 Sept. 16	27 57.6	51.7	39 28 54.4	4 37.8	28 49.3	33 32.2
335	41 (Hev.)Androm.	6	4 Sept. 30	28 47.4	51.9	41 31 40.1	4 34.3	1 29 39.3	+41 36 14.4
336	105 Piscium . .	7	4 Oct. 15	28		15 18 42.8	4 29.1	1 29	+15 23 11.9
337	Piazzi 145 . .	7	3 Aug. 20	29 16.6	53.3	24 38 51.7	4 59.4	1 30 9.9	+24 43 51.1
338	" . . .	7	3 Aug. 21	29 15.9	53.3	24 38 49.7	4 59.2	30 9.2	43 48.9
339	1 (Hev.)Trianguli	6	4 Oct. 2	29 42.4	50.4	34 9 19.1	4 32.3	1 30 32.8	+34 13 51.4
340	" . . .	6	4 Nov. 17	29 43.2	50.1	34 9 29.4	4 24.3	30 33.3	13 53.7
341	Lalande 3100 .	7.8	4 Sept. 16	29 59.6	51.8	39 17 6.7	4 36.8	1 30 51.4	+39 21 43.5
342	106 Piscium ν		3 Sept. 15	30 12.9	49.4	4 23 24.4	4 49.7	1 31 2.3	+ 4 28 14.1
343	" . . .	5	4 Oct. 15	30 16.3	45.6	4 23 49.9	4 28.2	31 1.9	28 18.1
344	107 Piscium . .	6	4 Oct. 2	31		19 13 6.9	4 29.8	1 32	+19 17 36.7
345	" . . .	6	4 Oct. 6	30 51.9	47.9	19 13 9.1	4 29.3	31 39.8	17 38.4
346	" . . .	6	4 Oct. 8	30 52.5	47.8	19 13 8.4	4 29.0	31 40.3	17 37.4
347	" . . .	6	4 Oct. 9	30 52.3	47.8	19 13 8.6	4 29.0	31 40.1	17 37.6
348	Lalande 3149,50	6.7	3 Aug. 20	31 32.7	54.7	31 5 45.4	5 0.1	1 32 27.4	+31 10 45.5
349	" . . .	7	3 Aug. 21	31 32.7	54.6	31 5 49.3	4 59.9	32 27.3	10 49.2
350	" . . .	6.7	4 Sept. 28	1 31 37.4	+ 50.0	+31 6 11.0	+ 4 31.7	1 32 27.4	+31 10 42.7

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
351	Lalande 3149,50	7.6	4 Sept. 30	1 31 37.6	+ 50.0	+31 6 13.1	+ 4 31.3	1 32 27.6	+31 10 44.4
352	109 Piscium	8	3 Sept. 17	33 10.0	51.8	18 59 55.5	4 50.6	1 34 1.8	+19 4 46.1
353	"	6	4 Oct. 2	33 14.0	48.0	19 0 17.0	4 28.5	34 2.0	4 45.5
354	"	8	4 Oct. 6	33 14.1	47.9	19 0 19.5	4 28.0	34 2.0	4 47.5
355	"	6.7	4 Oct. 8	33 14.4	47.9	19 0 19.2	4 27.7	34 2.3	4 46.9
356	"	6.7	4 Oct. 9	33 13.9	47.9	19 0 19.3	4 27.6	34 1.8	4 46.9
357	"	8	4 Oct. 15	33 14.0	47.8	19 0 21.0	4 27.0	34 1.8	4 48.0
358	110 Piscium υ		3 Sept. 15	34 1.0	50.1	8 3 53.5	4 48.2	1 34 51.1	+ 8 8 41.7
359	3 Arietis	6.7	4 Sept. 16	34 57.4	47.8	16 19 48.6	4 29.2	1 35 45.2	+16 24 17.8
360*	"	7	4 Oct. 2	34 57.7	47.6	16 19 53.8	4 27.2	35 45.3	24 21.0
361*	"	9	4 Oct. 15	34 57.8	47.4	16 19 55.2	4 26.0	35 45.2	24 21.2
362	Piazzi 170	6.7	4 Sept. 28	36 1.9	51.4	36 52 31.1	4 30.3	1 36 53.3	+36 57 1.4
363	"	7	4 Sept. 30	36 1.6	51.4	36 52 33.3	4 29.9	36 53.0	57 3.2
364	Piazzi 171	6.7	3 Sept. 17	36 22.3	54.4	31 35 23.5	4 51.4	1 37 16.7	+31 40 14.9
365*	4 Arietis	6	4 Oct. 2	36 33.5	47.5	15 52 49.8	4 26.3	1 37 21.0	+15 57 16.1
366	"	6.7	4 Oct. 8	36 34.0	47.5	15 52 49.5	4 25.6	37 21.5	57 15.1
367	1 Arietis	6	4 Sept. 16	38 18.0	48.8	21 12 0.1	4 28.4	1 39 6.8	+21 16 28.5
368	"	7	4 Oct. 9	38 18.3	48.4	21 12 10.5	4 25.1	39 6.7	16 35.6
369	"	7	4 Oct. 15	38 18.5	48.3	21 12 11.4	4 24.4	39 6.8	16 35.8
370	"	8	4 Nov. 17	38 19.8	48.1	21 12 11.5	4 21.6	39 7.9	16 33.1
371	Lalande 3378	7.8	4 Sept. 30	39 22.8	48.2	19 26 41.8	4 25.4	1 40 11.0	+19 31 7.2
†372	54 Ceti	6.7	3 Aug. 20	39 24.5	51.1	9 57 57.7	4 28.8	1 40 15.6	+10 2 26.5
373	Bessel, W.1017	7	4 Oct. 2	40 6.8	47.8	17 13 44.2	4 24.5	1 40 54.6	+17 18 8.7
374	"	6.7	4 Oct. 8	40 7.4	47.8	17 13 39.8	4 23.8	40 55.2	18 3.6
375	Lalande 3405	8.9	3 Sept. 15	40 10.4	52.8	23 2 30.2	4 47.6	1 41 3.2	+23 7 17.8
376	"	8	4 Oct. 9	40 14.2	48.8	23 2 53.2	4 24.2	41 3.0	7 17.4
377	2 Trianguli α	4	3 Sept. 17	40 48.9	53.9	28 31 11.2	4 48.0	1 41 42.8	+28 35 59.2
378	Lalande 3425	8	4 Sept. 30	41 0.5	49.8	27 45 15.7	4 25.8	1 41 50.3	+27 49 41.5
379*	5 Arietis γ		4 Sept. 16	41 46.1	48.4	18 14 7.7	4 25.8	1 42 34.5	+18 18 33.5
380	"		4 Oct. 2	41 46.6	48.1	18 14 12.5	4 23.6	42 34.7	18 36.1
381	"	4	4 Oct. 9	41 46.4	48.0	18 14 16.5	4 22.8	42 34.4	18 39.3
382	"	4	4 Oct. 15	41 46.2	47.9	18 14 20.4	4 22.3	42 34.1	18 42.7
383*	6 Arietis β		3 Aug. 20	42 43.8	53.0	19 44 40.0	4 49.8	1 43 36.8	+19 49 29.8
384	"		3 Sept. 15	42 44.8	52.3	19 44 43.4	4 45.2	43 37.1	49 28.6
385	"		3 Sept. 17	42 44.4	52.3	19 44 44.6	4 44.9	43 36.7	49 29.5
386	Lalande 3514,5	8.9	4 Oct. 8	43 16.9	47.1	12 41 42.8	4 21.6	1 44 4.0	+12 46 4.4
387	"	9	4 Nov. 17	43 17.6	46.8	12 41 43.9	4 20.0	44 4.4	46 3.9
388	56 Andromedæ		4 Oct. 15	43 28.5	51.4	36 11 31.7	4 22.7	1 44 19.9	+36 15 54.4
389	7 Arietis	6.7	4 Sept. 16	43 54.0	49.2	22 31 2.7	4 25.5	1 44 43.2	+22 35 28.2
390	Groombridge 418	7.8	4 Oct. 2	44 59.1	52.8	40 38 19.3	4 25.2	1 45 51.9	+40 42 44.5
391	8 Arietis ι	6	4 Sept. 16	45 38.7	48.2	16 45 43.6	4 23.2	1 46 26.9	+16 50 6.8
392	"	6	4 Oct. 8	45 39.3	47.8	16 45 48.7	4 20.5	46 27.1	50 9.2
393	"	6	4 Oct. 9	45 38.8	47.8	16 45 51.4	4 20.5	46 26.6	50 11.9
394	9 Arietis λ		3 Aug. 20	45 54.6	53.6	+22 32 4.4	4 48.7	1 46 48.2	+22 36 53.1
395*	58 Ceti	7	4 Sept. 30	47 5.2	44.6	− 3 6 42.8	4 18.1	1 47 49.8	− 3 2 24.7
396*		7	4 Nov. 17	47 6.5	44.3	− 3 6 49.0	4 20.4	47 50.8	2 28.6
397	Lalande 3640	7.8	3 Sept. 17	47 6.1	51.9	+17 18 4.0	4 41.6	1 47 58.0	+17 22 45.6
398	Piazzi 222	6	4 Oct. 2	47 41.9	48.6	20 0 32.8	4 20.4	1 48 30.5	+20 4 53.2
399	"	6.7	4 Oct. 8	47 42.9	48.5	20 0 35.4	4 19.7	48 31.4	4 55.1
400*	"	6	4 Oct. 15	47 42.3	48.4	20 0 30.6	4 18.9	48 30.7	4 49.5
401	Lalande 3715		4 Oct. 9	49 36.5	49.0	22 21 1.6	4 18.7	1 50 25.5	+22 25 20.3
402	"	8	4 Nov. 17	49 36.8	48.7	22 21 6.4	4 14.9	50 25.5	25 21.3
403	57 Andromedæ γ		3 Aug. 20	50 42.1	58.6	41 16 55.6	4 51.4	1 51 40.7	+41 21 47.0
404*	"		3 Sept. 15	50 42.9	57.8	41 17 1.2	4 45.2	51 40.7	21 46.4
405	"		3 Sept. 17	50 43.1	57.8	41 17 2.8	4 44.6	51 40.9	21 47.4
406*	Lalande 3767	6	3 Sept. 17	50 43.9	57.8	41(17)		1 51 41.7	+41(21)
407	113 Piscium α		4 Sept. 16	50 56.7	45.7	1 43 16.4	4 16.8	1 51 42.4	+ 1 47 33.2
408	"		4 Sept. 30	50 57.6	45.5	1 43 20.2	4 16.1	51 43.1	47 36.3
409*	10 Arietis	6	4 Oct. 2	51 29.2	50.3	24 53 39.9	4 18.8	1 52 19.5	+24 57 58.7
410	"	6.7	4 Oct. 8	1 51 30.2	+ 49.5	+24 53 38.4	+ 4 17.8	1 52 19.7	+24 57 56.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
411	10 Arietis . .	7	4 Oct. 15	1 51 30.0	+ 49.4	+24 53 39.4	+ 4 17.0	1 52 19.4	+24 57 56.4
412	279 Bradley . .	7.8	4 Oct. 8	52 13.6	49.5	24 52 55.0	4 17.5	1 53 3.1	+24 57 12.5
413	Lalande 3803,4 .	9	4 Oct. 9	52 40.9	46.3	7 3 37.5	4 15.3	1 53 27.2	+ 7 7 52.8
414*	284 Bradley . .	7	4 Oct. 6	54 33.6	49.2	24(48)		1 55 22.4	+24(52)
415	12 Arietis κ		4 Sept. 16	54 34.4	49.4	21 37 1.2	4 18.8	1 55 23.8	+21 41 20.0
416	" . . .		4 Sept. 30	54 34.9	49.1	21 37 4.8	4 16.7	55 24.0	41 21.5
417	" . . .	6	4 Oct. 2	54 34.9	49.1	21 37 1.2	4 16.4	1 55 24.0	+21 41 17.6
418	11 Arietis . .	6	4 Oct. 6	54 41.1	49.6	24 40 21.0	4 16.2	1 55 30.7	+24 44 37.2
419	" . . .	6.7	4 Oct. 8	54 41.1	49.6	24 40 23.1	4 15.9	55 30.7	44 39.0
420	13 Arietis α		3 Aug. 20	55 1.2	54.0	22 25 53.6	4 42.4	1 55 55.2	+22 30 36.0
421	" . . .		3 Sept. 15	55 2.3	53.3	22 25 59.7	4 37.8	55 55.6	30 37.5
422	" . . .		3 Sept. 17	55 1.9	53.2	22 26 0.1	4 37.4	55 55.1	30 37.5
•423	" . . .	2	4 Oct. 9	55 6.1	49.1	22 26 25.4	4 15.3	55 55.2	30 40.7
424	58 Andromedæ .	6	4 Oct. 15	55 35.5	52.3	36 49 55.7	4 15.6	1 56 27.8	+36 54 11.3
425	4 Trianguli β		4 Sept. 30	56 48.4	51.9	33 57 44.6	4 17.4	1 57 40.3	+34 2 2.0
426	" . . .	4	4 Oct. 6	56 49.3	51.8	33 57 48.0	4 16.2	57 41.1	2 4.2
427	14 Arietis . .	6.5	4 Nov. 17	57 14.4	49.4	24 55 3.2	4 9.9	1 58 3.8	+24 59 13.1
428	Lalande 3950,1 .	6.7	4 Oct. 8	57 37.2	48.0	16 12 37.9	4 13.0	1 58 25.2	+16 16 50.9
429*	59 Andromedæ .	6.7	3 Sept. 17	57 50.3	57.3	38 0 42.7	4 39.2	1 58 47.6	+38 5 21.9
430	" . . .	7.8	4 Oct. 15	57 55.0	52.7	38 1 1.9	4 14.4	58 47.7	5 16.3
431	Lalande 3959 .		4 Oct. 2	57 50.1	48.7	19 19 21.1	4 13.9	1 58 38.8	+19 23 35.0
432*	15 Arietis . .	7	3 Aug. 20	58 40.4	53.2	18 28 20.1	4 38.4	1 59 33.6	+18 32.58.5
433	" . . .	6	4 Sept. 16	58 44.7	48.9	18 28 45.7	4 15.3	59 33.6	33 1.0
434	" . . .		4 Sept. 30	58 45.0	48.6	18 28 46.7	4 13.4	59 33.6	33 0.1
435	" . . .	6	4 Oct. 2	58 45.6	48.6	18 28 46.6	4 13.2	59 34.2	32 59.8
436	" . . .	6	4 Oct. 8	(58)		18 28 50.0	4 12.5	(59)	33 2.5
437	" . . .	7	4 Oct. 9	58 45.4	48.5	18 28 49.4	4 12.4	59 33.9	33 1.8
438	60 Andromedæ b		3 Sept. 15	1 59 45.3	59.2	43 12 24.6	4 39.5	2 0 44.5	+43 17 4.1
439	64 Ceti . . .	6	4 Oct. 6	2 0 2.4	46.5	7 33 27.0	4 10.6	2 0 48.9	+ 7 37 37.6
440	17 Arietis η		3 Aug. 20	0 43.6	53.7	20 11 12.5	4 37.5	2 1 37.3	+20 15 50.0
441	" . . .	6	4 Oct. 8	0 48.5	48.9	20 11 41.8	4 11.4	1 37.4	15 53.2
442*	Lalande 4068–70	11	4 Oct. 15	1 0.9	48.5	18 48 20.0	4 10.4	2 1 49.4	+18 52 30.4
443	Piazzi 13 . . .	7	4 Oct. 2	1 1.6	56.3	47 46 0.0	4 16.8	2 1 57.9	+47 50 16.8
444	65 Ceti ξ¹	5.6	4 Oct. 6	1 38.9	46.6	7 49 58.3	4 9.5	2 2 25.5	+ 7 54 7.8
445	Piazzi 20 . . .	8	4 Sept. 16	1 57.7	49.0	18 35 56.9	4 13.2	2 2 46.7	+18 40 10.1
446	" . . .	8	4 Oct. 8	1 58.6	48.6	18 36 7.1	4 10.4	2 47.2	40 17.5
447	" . . .	9	4 Oct. 15	1 58.4	48.5	18 36 7.9	4 9.7	2 46.9	40 17.6
448	" . . .	7	4 Nov. 17	1 59.6	48.2	18 36 8.0	4 7.5	2 47.8	40 15.5
449	8 Trianguli δ		3 Sept. 15	3 56.0	56.3	33 13 29.5	4 34.1	2 4 52.3	+33 18 3.6
450	" . . .		3 Sept. 17	3 55.4	56.3	33 13 37.7	4 33.6	4 51.7	18 11.3
451	Piazzi 39 . . .	8	4 Sept. 30	5 0.0	50.8	27 44 39.7	4 10.9	2 5 50.8	+27 48 50.6
452	Lalande 4210 .	7.8	4 Sept. 16	5 3.9	50.0	22 45 57.6	4 12.0	2 5 53.9	+22 50 9.6
453	" . . .	6.7	4 Oct. 2	5 3.9	49.6	22 45 57.7	4 9.7	5 53.5	50 7.4
454	" . . .	7	4 Oct. 6	5 4.4	49.6	22 45 59.0	4 9.2	5 54.0	50 8.2
455	" . . .	7	4 Oct. 8	5 3.7	49.6	22 45 59.9	4 8.8	5 53.3	50 8.7
456	" . . .	7.8	4 Oct. 15	5 4.1	49.4	22 46 2.0	4 8.0	5 53.5	50 10.0
457	" . . .	7	4 Nov. 17	5 4.8	49.2	22 46 2.5	4 5.0	5 54.0	50 7.5
458	Lalande 4211 .	8	4 Oct. 6	5 8.6	49.6	22 52 13.4	4 9.1	2 5 58.2	+22 56 22.5
459	22 Arietis θ . .		3 Aug. 20	6 7.7	53.6	18 53 33.8	4 33.0	2 7 1.3	+18 58 6.8
460	10 Trianguli α	7	4 Sept. 30	6 32.3	50.8	27 38 36.5	4 9.8	2 7 23.1	+27 42 46.3
461	Lalande 4295,6 .	6.7	4 Oct. 6	7 34.0	51.1	29 11 38.9	4 8.4	2 8 25.1	+29 15 47.3
462	" . . .	7	4 Oct. 8	7 34.2	51.1	29 11 41.5	4 8.1	8 25.3	15 49.6
463	" . . .	7	4 Nov. 17	7 34.3	50.7	+29 11 45.1	4 2.7	8 25.0	15 47.8
464	68 Ceti ο	6.7	4 Sept. 16	8 29.8	44.7	— 3 57 32.7	4 3.6	2 9 14.5	— 3 53 29.1
465	47 (Hev.)Androm.	6.7	4 Oct. 15	9 32.3	54.2	+40 24 42.2	4 7.2	2 10 26.5	+40 28 49.4
466	Lalande 4358 .	7	3 Aug. 20	9 55.5	54.4	21 52 37.6	4 31.1	2 10 49.9	+21 57 8.7
467	" . . .	7	4 Oct. 9	10 0.6	49.5	21 53 2.6	4 5.2	10 50.1	57 7.8
468	Lalande 4361 .	8	4 Oct. 2	10 3.6	48.2	15 10 23.8	4 4.9	2 10 51.8	+15 14 28.7
469	Lalande 4377,8 .	7.8	4 Oct. 6	10 36.1	52.6	34 27 18.1	4 7.2	2 11 28.7	+34 31 25.3
470	" . . .	8	4 Oct. 8	2 10 36.1	+ 52.6	+34 27 16.8	+ 4 6.7	2 11 28.7	+34 31 23.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
471	Piazzi 74 . . .	8	3 Aug. 20	2 12 54.2	+ 56.6	+28 53 40.2	+ 4 27.8	2 13 50.8	+28 58 8.0
472	" . . .	7.8	3 Sept. 17	12 55.2	55.6	28 53 46.1	4 25.8	13 50.8	58 11.9
473	24 Arietis ξ	5	4 Sept. 16	13 8.3	47.6	9 37 49.0	4 2.9	2 14 5.9	+ 9 41 51.9
474	Bessel, W.408 .	7.8	4 Oct. 2	13 36.3	50.2	24 10 52.2	4 3.8	2 14 26.5	+24 14 56.0
475	" . . .	8	4 Oct. 8	13 36.5	50.2	24 10 50.8	4 3.0	14 26.7	14 53.8
476	" . . .	7.8	4 Oct. 9	13 36.4	50.1	24 10 49.9	4 2.9	14 26.5	14 52.1
477	" . . .	7	4 Nov. 17	13 37.1	49.7	24 10 51.4	3 58.9	14 26.8	14 50.3
478	Lalande 4493,4 .	8	4 Sept. 30	14 38.4	50.5	25 4 2.9	4 3.6	2 15 28.9	+25 8 6.5
479	Lalande 4496 .	6	4 Oct. 6	14 45.7	50.7	26 2 27.1	4 2.8	2 15 36.4	+26 6 29.9
480	" . . .	6.7	4 Oct. 8	14 45.6	50.6	26 2 28.9	4 2.4	15 36.2	6 31.3
481	11 Trianguli d	6	4 Oct. 15	14 47.5	51.7	30 49 43.6	4 2.7	2 15 39.2	+30 53 46.3
482	12 Trianguli c		3 Aug. 20	15 32.5	56.4	28 41 36.8	4 28.8	2 16 28.9	+28 46 5.6
483	" . . .		3 Sept. 17	15 33.0	55.6	28 41 44.9	4 23.6	16 28.6	46 8.5
484	25 Arietis . .	6	4 Sept. 16	15 58.2	47.4	9 14 13.5	4 0.8	2 16 45.6	+ 9 18 14.3
485	13 Trianguli . .	7.6	4 Oct. 2	16 15.2	51.5	28 57 24.7	4 2.8	2 17 6.7	+29 1 27.5
486	" . . .	7	4 Oct. 9	16 15.2	51.4	28 57 24.0	4 1.7	17 6.6	1 25.7
487	" . . .	6.7	4 Nov. 17	16 15.8	51.0	28 57 29.3	3 56.6	17 6.8	1 25.9
488	Lalande 4572,4 .	6.7	4 Sept. 30	17 1.6	50.0	22 30 4.7	4 1.3	2 17 51.6	+22 34 6.0
489	Lalande 4588 .	7	4 Oct. 15	17 24.8	52.4	32 52 12.2	4 0.5	2 18 17.2	+32 56 12.7
490	Piazzi 96 . . .	6	4 Oct. 6	18 13.8	50.4	24 16 26.8	4 0.0	2 19 4.2	+24 20 26.8
491	26 Arietis . .	6	4 Oct. 8	18 38.3	49.1	18 53 36.2	3 58.5	2 19 27.4	+18 57 34.7
492	14 Trianguli .	6.5	3 Aug. 20	18 58.0	58.6	35 10 37.3	4 28.1	2 19 56.6	+35 15 5.4
493	" . . .		3 Sept. 17	18 58.6	57.8	35 10 44.4	4 22.6	19 56.4	15 7.0
494*	" . . .	6	4 Oct. 2	19 3.2	53.4	35 11 0.2	4 2.0	19 56.6	15 2.2
495	" . . .	6	4 Oct. 9	19 3.2	53.2	35 11 4.2	4 0.6	19 56.4	15 4.8
496	" . . .	5.6	4 Nov. 17	19 3.9	52.8	35 11 15.4	3 54.2	19 56.7	15 9.6
497	Piazzi 105 . .	7.8	4 Oct. 15	19 58.2	52.7	33 35 11.6	3 58.7	2 20 50.9	+33 39 10.3
498	29 Arietis . .	7	4 Oct. 8	21 10.4	48.1	14 4 32.5	3 55.8	2 21 58.5	+14 8 28.3
499	Lalande 4720,1 .	7	4 Oct. 6	21 21.6	52.7	32 50 17.9	3 59.1	2 22 14.3	+32 54 17.0
500*	Groombridge 530	7	3 Aug. 20	22 0.6	60.0	38 42 25.3	4 26.7	2 23 0.6	+38 46 52.0
501	Lalande 4752 .	6	4 Oct. 2	22 28.0	53.9	36 21 44.4	3 59.6	2 23 21.9	+36 25 44.0
502	" . . .	6	4 Nov. 17	22 28.9	53.3	36 21 53.6	3 51.6	23 22.2	25 45.2
503	Lalande 4759 .	8	4 Oct. 9	22 51.9	47.4	10 39 16.8	3 54.0	2 23 39.3	+10 43 10.8
504*	15 Trianguli .		3 Sept. 17	22 43.8	57.5	33 44 6.5	4 19.1	2 23 41.3	+33 48 25.6
505	" . . .	6.7	4 Oct. 15	22 48.0	52.9	33 44 29.1	3 56.6	23 40.9	48 23.7
506*	Piazzi 117 . .	7.8	3 Sept. 17	22 47.4	57.5	33 46 12.1	4 19.1	2 23 44.9	+33 50 31.2
507	" . . .	7.8	4 Oct. 15	22 51.7	52.9	33 46 38.6	3 56.5	23 44 6	50 35.1
508	78 Ceti ν		4 Sept. 30	24 37.4	46.2	4 38 55.9	3 52.2	2 25 23.6	+ 4 42 48.1
509	" . . .	4.5	4 Oct. 9	24 37.8	46.1	4 38 59.7	3 51.9	25 23.9	42 51.6
510	31 Arietis . .	5.6	4 Oct. 8	24	47.6	11 30 29.4	3 51.3	2 25	+11 34 20.7
511	Lalande 4830 .	6	3 Aug. 20	24 58.9	59.5	36 46 45.2	4 23.6	2 25 58.4	+36 51 8.8
512	" . . .	7	4 Oct. 2	25 4.3	54.2	36 47 12.5	3 57.7	25 58.5	51 10.2
513*	" . . .	7	4 Oct. 6	25 4.2	54.1	36 47 12.7	3 56.9	25 58.3	51 9.6
514	Bessel, W.704 .	7	4 Nov. 17	25 12.2	53.7	37 9 2.4	3 49.6	2 26 5.9	+37 12 52.0
515	Lalande 4854 .	8.9	4 Oct. 15	25 51.3	52.6	32 28 44.5	3 54.0	2 26 43.9	+32 32 38.5
516	32 Arietis ν		3 Sept. 17	26 34.6	54.0	21 1 6.5	4 12.5	2 27 28.6	+21 5 19.0
517	33 Arietis . •.	6	3 Aug. 20	28 5.4	56.2	26 7 16.3	4 17.3	2 29 1.6	+26 11 33.6
518	" . . .		4 Sept. 30	28 10.1	51.3	26 7 44.3	3 53.4	29 1.4	11 37.7
519	" . . .	6.5	4 Oct. 8	28 11.0	51.1	+26 7 44.8	3 52.3	29 2.1	11 37.1
520	82 Ceti δ	3	4 Oct. 9	28 29.8	45.0	— 0 36 14.5	3 48.1	2 29 14.8	— 0 32 26.4
521	12 Persei . . .	7	4 Oct. 2	28 45.8	55.2	+39 16 26.8	3 55.4	2 29 41.0	+39 20 22.2
522*	" . . .	4.5	4 Oct. 6	28 45.6	55.1	39 16 27.7	3 54.6	29 40.7	20 22.3
523	" . . .	6	4 Oct. 15	28 45.5	54.9	39 16 26.9	3 52.7	29 40.4	20 19.6
524	" . . .	6	4 Nov. 17	28 46.4	54.5	39 16 36.9	3 46.7	29 40.9	20 23.6
525	34 Arietis μ		3 Aug. 20	30 12.6	54.4	19 4 50.2	4 13.0	2 31 7.0	+19 9 3.2
526*	14 Persei . . .		3 Sept. 17	30 5.7	61.5	43 21 56.8	4 15.4	2 31 7.2	+43 26 12.2
527	35 Arietis . .		4 Sept. 30	30 53.0	51.6	26 46 59.1	3 51.4	2 31 44.6	+26 50 50.5
528	" . . .	4	4 Oct. 8	30 53.8	51.4	26 47 2.2	3 50.2	31 45.2	50 52.4
529	86 Ceti γ	3	4 Oct. 9	32 11.7	45.6	2 19 26.4	3 45.4	2 32 57.3	+ 2 23 11.8
530	36 Arietis . •.	7	4 Oct. 2	2 32 21.5	+ 49.1	+16 50 48.0	+ 3 47.9	2 33 10.6	+16 54 35.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
531	36 Arietis	6.7	4 Oct. 6	2 32 21.5	+ 49.0	+16 50 47.6	+ 3 47.6	2 33 10.5	+16 54 35.2
532	"	6	4 Oct. 15	32 21.8	48.8	16 50 49.0	3 46.9	33 10.6	54 35.9
533	37 Arietis o		3 Aug. 20	32 39.1	53.2	14 23 13.7	4 9.2	2 33 32.3	+14 27 22.9
534	87 Ceti μ		3 Sept. 17	33 16.9	51.2	9 11 36.9	4 3.5	2 34 8.1	+ 9 15 40.4
535	39 Arietis	4	4 Sept. 30	35 9.4	52.2	28 20 41.1	3 48.3	2 36 1.6	+28 24 29.4
536	Bessel, W.948	8	4 Oct. 2	35 11.1	50.6	22 43 36.6	3 46.8	2 36 1.7	+22 47 23.4
537	"	8.9	4 Oct. 6	35 11.3	50.5	22 43 34.9	3 46.3	36 1.8	47 21.2
538*	"	8.9	4 Oct. 8	35 11.5	50.5	22 43 35.6	3 46.1	36 2.0	47 21.7
539	Lalande 5149,50	9.10	4 Oct. 15	35 21.9	49.3	18 28 23.6	3 44.6	2 36 11.2	+18 32 8.2
540	16 Trianguli	7	4 Oct. 8	36 18.7	50.9	24 16 56.3	3 45.4	2 37 9.6	+24 20 41.7
541	"	6.7	4 Oct 9	36 18.9	50.9	24 16 56.3	3 45.3	37 9.8	20 41.6
542	16 Persei p¹	4	3 Sept. 17	37 0.5	59.6	37 25 3.2	4 7.8	2 38 0.1	+37 29 11.0
543	41 Arietis	5.6	4 Oct. 6	37 22.9	51.6	26 21 56.9	3 45.1	2 38 14.5	+26 25 42.0
544	"	3	4 Oct. 15	37 22.8	51.4	26 22 0.3	3 44.0	38 14.2	25 44.3
545	Lalande 5221	6.5	3 Aug. 20	37 18.5	64.3	45 56 4.5	4 15.6	2 38 22.8	+46 0 20.1
546	Lalande 5248,9	8	4 Oct. 8	38 35.6	49.4	18 15 57.0	3 42.5	2 39 25.0	+18 19 39.5
547	43 Arietis σ	6	4 Oct. 15	39 38.8	48.3	14 11 19.7	3 40.4	2 40 27.1	+14 15 0.1
548*	20 Persei	6	3 Sept. 17	40 8.4	59.8	37 26 43.1	4 5.0	2 41 8.2	+37 30 48.1
549	Piazzi 201	7	4 Oct. 6	40 29.3	53.0	30 45 19.3	3 43.4	2 41 22.3	+30 49 2.7
550	"	7.8	4 Oct. 9	40 29.4	52.9	30 45 19.9	3 42.9	41 22.3	49 2.8
551*	Piazzi 203	7	4 Sept. 30	41 16.0	49.0	15 35 50.0	3 40.3	2 42 5.0	+15 39 30.3
552	"	6	4 Oct. 2	41 15.3	49.0	15 35 48.8	3 40.2	42 4.3	39 29.0
553	"	7	4 Oct. 15	41 15.9	48.7	15 35 55.3	3 39.2	42 4.6	39 34.5
554	Lalande 5359	7.8	4 Oct. 6	42 39.6	49.9	19 29 22.2	3 39.4	2 43 29.5	+19 33 1.6
555	45 Arietis ρ²		3 Aug. 20	43 41.2	54.3	17 26 41.8	4 1.8	2 44 35.5	+17 30 43.6
556	"	6.7	4 Oct. 8	43 46.7	49.4	17 27 7.4	3 37.8	44 36.1	30 45.2
557	"	6.7	4 Oct. 15	43 46.0	49.2	17 27 11.1	3 37.3	44 35.2	30 48.4
558	46 Arietis ρ³	5	4 Sept. 30	44 20.2	49.5	17 9 25.5	3 38.0	2 45 9.7	+17 13 3.5
559	"	6	4 Oct. 2	44 20.3	49.4	17 9 26.8	3 37.8	45 9.7	13 4.6
560	"	6.7	4 Oct. 6	44 20.2	49.4	17 9 29.6	3 37.5	45 9.6	13 7.1
561	"	6.7	4 Oct. 8	44 20.9	49.3	17 9 27.1	3 37.3	45 10.2	13 4.4
562	21 Persei		3 Sept. 17	44 13.7	57.7	31 3 9.2	3 59.4	2 45 11.4	+31 7 8.6
563	Anonyma	6	4 Oct. 9	44 29.0	55.4	37 44 24.2	3 40.8	2 45 24.4	+37 48 5.0
564	Bessel, W.864	6	4 Oct. 15	45 50.6	45.9	3 37 34.8	3 33.8	2 46 36.5	+ 3 41 8.6
565	48 Arietis ε		3 Aug. 20	46 52.3	55.3	20 27 52.1	3 58.0	2 47 47.6	+20 31 50.1
566	"		4 Sept. 30	46 57.7	50.4	20 28 17.2	3 36.5	47 48.1	31 53.7
567	"	6	4 Oct. 2	46 57.9	50.4	20 28 18.0	3 36.2	47 48.3	31 54.2
568	"	6.5	4 Oct. 6	46 57.8	50.3	20 28 19.6	3 35.8	47 48.1	31 55.4
569	"	5	4 Oct. 8	46 57.7	50.2	20 28 18.3	3 35.6	47 47.9	31 53.9
570	Lalande 5523	8	3 Sept. 17	47 56.6	50.5	5 47 1.5	3 48.9	2 48 47.1	+ 5 50 50.4
571	91 Ceti λ	5.6	4 Oct. 9	48 13.5	47.1	8 2 36.2	3 32.2	2 49 0.6	+ 8 6 8.4
572	"	6	4 Oct. 15	48 13.2	47.0	8 2 35.4	3 32.2	49 0.2	6 7.6
573	49 Arietis	6.7	4 Oct. 2	49 16.8	51.8	25 36 6.1	3 35.3	2 50 8.6	+25 39 41.4
574	"	6	4 Oct. 6	49 16.5	51.8	25 36 8.7	3 34.8	50 8.3	39 43.5
575	92 Ceti α		3 Aug. 20	50 59.8	50.6	3 14 2.2	3 47.9	2 51 50.4	+ 3 17 50.1
576	"		3 Sept. 17	51 0.5	49.9	3 14 3.5	3 45.3	51 50.4	17 48.8
577	"		4 Sept. 30	51 4.7	46.1	3 14 21.9	3 29.1	51 50.8	17 51.0
578	"	2	4 Oct. 9	51 4.5	45.9	3 14 23.4	3 28.9	51 50.4	17 52.3
579	"	2	4 Oct. 15	51 4.3	45.8	3 14 27.9	3 29.0	51 50.1	17 56.9
580	25 Persei ρ	4	4 Oct. 6	51 28.3	55.9	37 59 44.6	3 35.4	2 52 24.2	+38 3 20.0
581	Lalande 5671	7	4 Oct. 2	52 45.3	49.0	15 0 47.7	3 29.9	2 53 34.3	+15 4 17.6
582	52 Arietis	6	4 Oct. 8	52 52.8	51.5	24 24 32.0	3 31.1	2 53 44.3	+24 28 3.1
583*	26 Persei β		3 Aug. 20	54 10.1	62.7	40 6 28.1	3 57.5	2 55 12.8	+40 10 25.6
584	"		3 Sept. 17	54 10.8	61.7	40 6 34.7	3 52.5	55 12.5	10 27.2
585	"		4 June 21	54 11.6	60.7	40 6 46.7	3 47.8	55 12.3	10 34.5
586	"	4	4 Oct. 6	54 15.8	56.9	40 6 55.8	3 33.5	55 12.7	10 29.3
587	"	2.3	4 Oct. 9	54 15.6	56.8	40 6 53.6	3 32.9	55 12.4	10 26.5
588	"	2.3	4 Oct. 15	54 15.4	56.7	40 6 57.0	3 31.8	55 12.1	10 28.8
589	54 Arietis		4 Sept. 30	56 11.7	50.0	17 57 36.8	3 27.6	2 57 1.7	+18 1 4.4
590	"	6.7	4 Oct. 8	2 56 12.8	+ 49.8	+17 57 37.4	+ 3 26.8	2 57 2.6	+18 1 4.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
591	55 Arietis . .	7	4 Oct. 15	2 56 43.5	+.52.6	+28 14 45.8	+ 3 27.6	2 57 36.1	+28 18 13.4
592	99 Mayer . .	8.9	4 Oct. 2	57 22.9	50.1	18 33 4.3	3 26.4	2 58 13.0	+18 36 30.7
593	" . . .		4 Oct. 8	(57)		18 32 57.1	3 25.8	(58)	36 22.9
594	" . . .	8	4 Oct. 9	57 23.5	50.0	18 33 2.5	3 25.8	58 13.5	36 28.3
595	28 Persei ω		3 Sept. 17	57 24.3	61.4	38 46 40.5	3 48.9	2 58 25.7	+38 50 29.4
596	Groombridge 621	7.	4 Oct. 6	58 2.9	57.7	41 33 2.6	3 30.4	2 59 0.6	+41 36 33.0
597	57 Arietis δ		4 Sept. 30	59 21.9	50.3	18 54 12.9	3 24.8	3 0 12.2	+18 57 37.7
598	" . . .		4 Oct. 2	59		18 54 13.3	3 25.0	0	57 38.3
599	56 Arietis . .	6	4 Oct. 8	59 28.6	52.3	26 26 9.0	3 25.4	3 0 20.9	+26 29 34.4
600	" . . .	4	4 Oct. 9	2 59 29.0	52.3	26 26 10.9	3 25.5	0 21.3	29 36.4
601	58 Arietis ζ	·	3 Sept. 17	3 2 30.7	54.9	+20 13 56.9	3 38.4	3 3 25.6	+20 17 35.3
602	12 Eridani α		4 Sept. 30	2 57.6	36.7	—29 50 14.9	3 12.6	3 3 34.3	—29 47 2.3
603	" . . .		4 Oct. 2	2 57.7	36.7	29 50 14.0	3 12.8	3 34.4	47 1.2
604*	" . . .	3	4 Oct. 9	2 58.5	36.5	29 50 10.9	3 13.8	3 35.0	46 57.1
605*	" . . .	3	4 Oct. 15	2 57.8	36.4	—29 50 11.9	3 14.9	3 34.2	46 57.0
606	59 Arietis . .	7	4 Oct. 8	7 8.6	52.5	+26 16 56.8	3 18.2	3 8 1.1	+26 20 15.0
607	60 Arietis . .		4 Oct. 8	7 43.6	52.1	24 52 38.0	3 17.4	3 8 35.7	+24 55 55.4
608	Lalande 6141,2 .	7.8	3 Sept. 17	8 2.7	54.7	19 4 40.3	3 32.3	3 8 57.4	+19 8 12.6
609	Piazzi 37	6	4 Oct. 15	8 5.2	61.5	48 25 44.6	3 20.8	3 9 6.7	+48 29 5.4
610	33 Persei α	2	3 Feb. 18	8 55.6	71.6	49 4 36.5	3 32.8	3 10 7.2	+49 8 9.3
611*	" . . .		3 Apr. 9	8 54.8	72.5	49 4 28.6	3 39.6	10 7.3	8 8.2
612	" . . .		3 Aug. 20	8 58.6	68.7	49 4 20.3	3 45.1	10 7.3	8 5.4
613*	" . . .		4 June 21	9 0.5	66.7	49 4 39.2	3 34.2	10 7.2	8 13.4
614*	" . . .		4 Sept. 30	9 4.1	62.4	49 4 41.8	3 23.2	10 6.5	8 5.0
615	" . . .		4 Oct. 2	9 4.1	62.3	49 4 46.0	3 22.7	10 6.4	8 8.7
616	" . . .	2.3	4 Oct. 6	9 5.0	62.2	49 4 49.8	3 21.9	10 7.2	8 11.7
617	" . . .	2.3	4 Oct. 9	9 4.8	62.1	49 4 45.6	3 21.2	10 6.9	8 6.8
618	" . . .	2.3	4 Oct. 15	9 4.5	62.0	49 4 46.0	3 20.0	10 6.5	8 6.0
619	Groombridge 659	6	4 Oct. 6	10 47.6	61.9	48 20 49.9	3 20.1	3 11 49.5	+48 24 10.0
620*	64 Arietis . .		4 Sept. 30	11 38.5	52.1	23 57 5.3	3 14.3	3 12 30.6	+24 0 19.6
621	" . . .	6	4 Oct. 8	11 39.6	51.9	23 57 4.8	3 13.4	12 31.5	0 18.2
622*	Piazzi 53 . . .	6	3 Sept. 17	12 45.8	67.3	48 17 31.5	3 36.0	3 13 53.1	+48 21 7.5
623	" . . .	5.6	4 Oct. 6	12 51.8	62.0	48 17 46.7	3 18.0	13 53.8	21 4.7
624	" . . .	6	4 Oct. 15	12 52.4	61.8	48 17 47.9	3 16.3	13 54.2	21 4.2
625	1 Tauri ο	4	4 Oct. 9	13 16.7	47.4	8 15 48.5	3 8.5	3 14 4.1	+ 8 18 57.0
626	34 Persei . . .	5	4 Oct. 6	14 6.4	62.4	48 44 52.5	3 17.1	3 15 8.8	+48 48 9.6
627*	480 Bradley . .	7.8	4 Oct. 9	15 30.0	48.5	11 58 28.2	3 7.0	3 16 18.5	+12 1 35.2
628	2 Tauri ξ		4 Sept. 30	15 32.4	47.8	8 58 25.3	3 6.7	3 16 20.2	+ 9 1 32.0
629	" . . .		4 Oct. 2	15 32.7	47.8	8 58 23.8	3 6.6	16 20.5	1 30.4
630	35 Persei σ	5	4 Oct. 15	15 30.6	61.3	47 14 14.3	3 13.5	3 16 31.9	+47 17 27.8
631	108 Mayer . .	7.8	4 Oct. 9	16 53.6	48.1	10 38 10.1	3 5.3	3 17 41.7	+10 41 15.4
632*	Groombridge 694	6	4 Oct. 15	17 2.1	61.5	47 16 27.9	3 11.5	3 18 3.6	+47 19 39.4
633	109 Mayer . .	7.8	4 Oct. 8	17 36.8	49.7	16 0 41.9	3 5.8	3 18 26.5	+16 3 47.7
634	36 Persei . . .		3 Sept. 17	17 32.1	65.9	45 18 27.6	3 30.0	3 18 38.0	+45 21 57.6
635	Str. G.C.345 *pr.* .	8	4 Sept. 30	18 23.6	53.3	26 49 31.3	3 8.8	3 19 16.9	+26 52 40.1
636	" *foll.*	8	4 Sept. 30	18 25.1	53.3	26 49 31.3	3 8.8	3 19 18.4	+26 52 40.1
637	4 Tauri s	6.7	4 Oct. 2	18 40.9	48.3	10 35 21.4	3 3.8	3 19 29.2	+10 38 25.2
638	" . . .	6	4 Oct. 6	18 42.6	48.2	10 35 16.7	3 3.6	19 30.8	38 20.3
639	" . . .	6	4 Oct. 9	18 41.2	48.1	10 35 22.7	3 3.4	19 29.3	38 26 1
640	Groombridge 703	7	4 Oct. 15	19 29.0	57.6	39 9 40.4	3 8.0	3 20 26.6	+39 12 48.4
641	37 Persei ψ		3 Sept. 17	21 13.2	67.4	47 27 21.7	3 26.8	3 22 20.6	+47 30 48.5
642	7 Tauri . . .	6	4 Oct. 2	21 44.6	52.3	23 43 57.5	3 4.0	3 22 36.9	+23 47 1.5
643	" . . .	6	4 Oct. 8	21 45.3	52.1	23 43 55.5	3 3.3	22 37.4	46 58.8
644*	Piazzi 87 . . .	7	4 Sept. 30	21 56.0	50.3	17 7 3.3	3 2.3	3 22 46.3	+17 10 5.6
645	" . . .	7.6	4 Oct. 6	21 55.3	50.1	17 7 2.6	3 1.8	22 45.4	10 4.4
646	" . . .	7	4 Oct. 9	21 55.7	50.1	17 7 5.5	3 1.6	22 45.8	10 7.1
647	9 Tauri . . .	7	4 Sept. 30	24 22.2	52.0	22 29 21.4	3 1.1	3 25 14.2	+22 32 22.5
648	" . . .		4 Oct. 2	24 21.7	51.9	22 29 19.2	3 0.9	25 13.6	32 20.1
649	" . . .	7	4 Oct. 6	24 22.2	51.8	22 29 21.0	3 0.5	25 14.0	32 21.5
650	" . . .	7	4 Oct. 8	3 24 22.5	+ 51.8	+22 29 18.9	+ 3 0.4	3 25 14.3	+22 32 19.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
651	9 Tauri . . .	7	4 Oct. 9	3 24 22.1	+ 51.8	+22 29 21.4	+ 3 0.2	3 25 13.9	+22 32 21.6
652	Lalande 6677 .	8.9	4 Oct. 6	26 21.9	52.4	23 59 26.3	2 58.9	3 27 14.3	+24 2 25.2
653	" . . .	8	4 Oct. 8	26 22.4	52.3	23 59 27.9	2 58.7	27 14.7	2 26.6
654	39 Persei δ		3 Sept. 17	27 36.8	67.6	47 4 43.8	3 19.5	3 28 44.4	+47 8 3.3
655	11 Tauri . . .	6	4 Oct. 2	27 57.8	52.7	24 37 21.5	2 57.8	3 28 50.5	+24 40 19.3
656	" . . .	7	4 Oct. 6	27 58.5	52.6	24 37 20.7	2 57.3	28 51.1	40 18.0
657	" . . .	6.7	4 Oct. 8	27 58.4	52.6	24 37 19.7	2 57.1	28 51.0	40 16.8
658	" . . .	7	4 Oct. 9	27 58.1	52.6	24 37 20.1	2 57.0	28 50.7	40 17.1
659	13 Tauri . . .	6	4 Sept. 30	29 56.7	51.0	19 0 0.4	2 54.4	3 30 47.7	+19 2 54.8
660	Lalande 6806,7 .	8	4 Oct. 6	30 17.2	52.8	24 59 3.9	2 55.1	3 31 10.0	+25 1 59.0
661	Robinson 776 .	7.8	4 Oct. 2	30 54.9	52.7	24 23 18.9	2 54.7	3 31 47.6	+24 26 13.6
662	14 Tauri . . .	6.7	4 Sept. 30	31 23.6	51.0	18 58 30.7	2 52.9	3 32 14.6	+19 1 23.6
663	" . . .	6.7	4 Oct. 8	31 23.8	50.8	18 58 27.7	2 52.3	32 14.6	1 20.0
664	16 Tauri g	7	4 Oct. 9	32 3.6	52.4	23 36 2.1	2 52.6	3 32 56.0	+23 38 54.7
665	17 Tauri b	5	4 Oct. 9	32 9.1	52.3	23 25 35.9	2 52.4	3 33 1.4	+23 28 28.3
666	18 Tauri m	7.6	4 Oct. 2	32 22.6	52.7	24 9 12.4	2 53.1	3 33 15.3	+24 12 5.5
667	" . . .		4 Oct. 6	32 22.7	52.6	24 9 8.7	2 52.7	33 15.3	12 1.4
668	20 Tauri c		3 Sept. 17	32 59.8	56.9	23 40 59.0	3 6.3	3 33 56.7	+23 44 5.3
669	25 Tauri η		4 Sept. 30	34 44.3	52.6	23 25 41.9	2 50.6	3 35 36.9	+23 28 32.5
670*	" . . .		4 Oct. 2	34 44.7	52.5	23 25 42.3	2 50.4	35 37.2	28 32.7
671	" . . .	3	4 Oct. 6	34 45.1	52.4	23 25 43.8	2 50.0	35 37.5	28 33.8
672	" . . .	3	4 Oct. 8	34 45.0	52.4	23 25 43.0	2 49.8	35 37.5	28 32.8
673	" . . .	3	4 Oct. 9	34 44.8	52.4	23 25 42.9	2 49.7	35 37.2	28 32.6
674	27 Tauri f		3 Sept. 9	36 21.0	57.2	23 22 45.5	3 3.1	3 37 18.2	+23 25 48.6
675	" . . .	6	3 Sept. 17	36 20.4	56.9	23 22 45.3	3 2.3	37 17.3	25 47.6
676*	" . . .		4 Sept. 30	36 24.6	52.6	23 23 2.2	2 48.8	37 17.2	25 51.0
677*	" . . .		4 Oct. 2	36 26.1	52.6	23 23 3.0	2 48.6	37 18.7	25 51.6
678	" . . .	6	4 Oct. 6	36 25.6	52.4	23 23 3.1	2 48.2	37 18.0	25 51.3
679	" . . .	6	4 Oct. 8	36 26.8	52.4	23 23 2.7	2 48.0	37 19.2	25 50.7
680	" . . .	6	4 Oct. 9	36 25.4	52.4	23 23 4.0	2 47.9	37 17.8	25 51.9
681	Piazzi 179 . .	7.8	4 Oct. 2	39 22.2	53.0	24 30 51.2	2 45.7	3 40 15.2	+24 33 36.9
682	31 Tauri u²		4 Sept. 30	40 33.6	47.2	5 52 47.8	2 39.6	3 41 20.8	+ 5 55 27.4
683	Bessel, W. 985,6 .	7.8	4 Oct. 6	40 40.2	53.1	25 1 52.5	2 44.1	3 41 33.3	+25 4 36.6
684	44 Persei ζ		3 Sept. 17	40 35.1	60.1	31 13 38.5	2 59.9	3 41 35.2	+31 16 38.4
685	129 Mayer . .	7	4 Oct. 9	40 54.9	50.3	16 40 34.8	2 41.4	3 41 45.2	+16 43 16.2
686	Lalande 7164–6 .	8	4 Oct. 8	41 27.2	51.8	21 17 38.4	2 42.0	3 42 19.0	+21 20 20.4
687	Lalande 7185,6 .	7	4 Oct. 6	41 59.9	55.1	30 23 57.8	2 44.1	3 42 55.0	+30 26 41.9
688	45 Persei ε		3 Sept. 9	43 24.5	64.4	39 22 5.5	3 0.2	3 44 28.9	+39 25 5.7
689	" . . .		3 Sept. 17	43 23.4	64.1	39 22 7.0	2 59.1	44 27.5	25 6.1
690	32 Tauri . . .		4 Sept. 30	44 11.4	52.3	21 50 50.2	2 39.9	3 45 3.7	+21 53 30.1
691	" . . .	6	4 Oct. 8	44 11.9	52.1	21 50 46.4	2 39.2	45 4.0	53 25.6
692	" . . .	6	4 Oct. 9	44 12.0	52.0	21 50 49.6	2 39.2	45 4.0	53 28.8
693*	Lalande 7252	7.8	4 Oct. 6	44 16.2	56.8	34 10 46.5	2 42.7	3 45 13.0	+34 13 29.2
694	46 Persei ξ	5	4 Oct. 2	45 4.0	57.3	35 9 26.9	2 42.5	3 46 1.3	+35 12 9.4
695*	Bessel, W. 1117 .	8	4 Oct. 6	47 12.4	57.8	+36 22 1.3	2 39.9	3 48 10.2	+36 24 41.2
696	34 Eridani γ		3 Sept. 9	47 58.5	44.8	−14 7 46.0	2 37.5	3 48 43.3	−14 5 8.5
697	" . . .		3 Sept. 17	47 57.4	44.6	−14 7 50.2	2 35.0	48 42.0	5 15.2
698	Piazzi 212 . .	10.11	4 Oct. 9	48 11.6	51.4	+19 47 42.2	2 34.2	3 49 3.0	+19 50 16.4
699	Piazzi 217 . .	7	4 Sept. 30	48 37.6	51.6	19 35 5.1	2 34.4	3 49 29.2	+19 37 39.5
700	" . . .	6.7	4 Oct. 2	48 37.3	51.6	19 35 3.8	2 34.2	49 28.9	37 38.0
701	" . . .	6.7	4 Oct. 8	48 38.1	51.4	19 35 5.5	2 33.8	49 29.5	37 39.3
702	" . . .	6.7	4 Oct. 9	48 37.6	51.4	19 35 7.1	2 33.7	49 29.0	37 40.8
703	37 Tauri A		3 Sept. 17	51 56.2	56.6	21 28 42.7	2 43.2	3 52 52.8	+21 31 25.9
704*	" . . .	5	4 Sept. 30	52 0.7	52.3	21 28 52.0	2 31.2	52 53.0	31 23.2
705	" . . .		4 Oct. 2	52 0.7	52.3	21 28 58.4	2 31.0	52 53.0	31 29.4
706	" . . .	6.5	4 Oct. 6	52 1.3	52.2	21 28 56.0	2 30.6	52 53.5	31 26.6
707	" . . .	5	4 Oct. 8	52 1.7	52.1	21 28 57.0	2 30.5	52 53.8	31 27.5
708	" . . .	6	4 Oct. 9	52 1.4	52.1	21 28 55.8	2 30.4	52 53.5	31 26.2
709	39 Tauri . . .		3 Sept. 9	52 34.3	56.8	21 24 48.4	2 43.1	3 53 31.1	+21 27 31.5
†710		6	4 Oct. 2	3 56 1.2	+ 52.5	+21 48 3.9	+ 2 26.2	3 56 53.7	+21 50 30.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
711	Lalande 7661	7.8	4 Oct. 9	3 56 1.6	+ 52.8	+23 17 13.4	+ 2 26.4	3 56 54.4	+23 19 39.8
712	43 Tauri ω¹		3 Sept. 17	56 35.6	55.8	19 1 26.6	2 36.6	3 57 31.4	+19 4 3.2
713	"		4 Sept. 30	56 40.4	51.6	19 1 46.2	2 25.2	57 32.0	4 11.4
714	44 Tauri p		3 Sept. 9	57 42.3	58.7	25 54 10.4	2 38.4	3 58 41.0	+25 56 48.8
715	"	6.7	4 Oct. 9	3 57 46.4	53.8	25 54 26.1	2 25.1	58 40.2	56 51.2
716	52 Persei f		3 Sept. 17	4 0 13.2	65.2	39 55 10.1	2 39.1	4 1 18.4	+39 57 49.2
717*	Lalande 7865	10	4 Oct. 9	1 45.7	52.4	21 53 41.5	2 19.6	4 2 38.1	+21 56 1.1
718	48 Tauri	7	4 Oct. 9	3 35.9	50.1	14 51 3.0	2 15.5	4 4 26.0	+14 53 18.5
719	51 Tauri	7	4 Oct. 9	5 41.5	52.2	21 2 31.2	2 14.8	4 6 33.7	+21 4 46.0
720	56 Tauri	6	4 Oct. 9	(6)		21 14 33.4	2 13.7	4 (7)	+21 16 47.1
721	54 Tauri γ		4 Sept. 30	7 35.5	50.4	15 5 46.0	2 11.4	4 8 25.9	+15 7 57.4
722	59 Tauri χ	6	4 Oct. 9	9 31.8	53.8	25 6 32.0	2 11.4	4 10 25.6	+25 8 43.4
723	61 Tauri δ¹	4	4 Sept. 30	10 33.7	51.2	17 1 33.9	2 8.5	4 11 24.9	+17 3 42.4
724	"		4 Oct. 2	10 33.5	51.1	17 1 34.4	2 8.4	11 24.6	3 42.8
725	64 Tauri δ²		4 Oct. 2	11 43.6	51.1	16 56 1.8	2 7.0	4 12 34.7	+16 58 8.8
726	"	4	4 Oct. 9	11 43.2	50.9	16 56 0.6	2 6.7	12 34.1	58 7.3
727*	72 Tauri υ²		4 Oct. 2	14 27.9	53.1	22 29 57.4	2 5.5	4 15 21.0	+22 32 2.9
728	"	6	4 Oct. 9	14 28.1	52.9	22 29 55.8	2 4.9	15 21.0	32 0.7
729	74 Tauri ε		3 Sept. 9	16 1.4	56.3	18 41 13.2	2 12.7	4 16 57.7	+18 43 25.9
730	76 Tauri	7	4 Oct. 9	16 13.6	50.0	14 15 1.5	2 0.6	4 17 3.6	+14 17 2.1
731	158 Mayer	9	4 Oct. 2	17 43.1	52.0	19 21 31.8	2 0.7	4 18 35.1	+19 23 32.5
732	80 Tauri	7	4 Oct. 9	17 54.8	50.4	15 9 24.0	1 58.9	4 18 45.2	+15 11 22.9
733	81 Tauri	6	3 Sept. 9	18 20.8	55.0	15 12 31.0	2 8.5	4 19 15.8	+15 14 39.5
734*	"	7	4 Oct. 9	18		15 12 44.1	1 58.3	19	14 42.4
735	85 Tauri		3 Sept. 9	19 32.3	55.1	15 22 28.2	2 6.9	4 20 27.4	+15 24 35.1
736	"		4 Oct. 9	19 36.6	50.5	15 22 41.3	2 6.9	20 27.1	24 48.2
737	Lalande 8561	7	4 Oct. 2	21 7.5	51.4	17 32 59.6	1 56.0	4 21 58.9	+17 34 55.6
738	86 Tauri ρ		3 Sept. 9	21 36.7	54.8	14 22 37.4	2 3.9	4 22 31.5	+14 24 41.3
739	"	5	4 Oct. 9	21 40.6	50.2	14 22 48.8	1 54.1	22 30.8	24 42.9
740	87 Tauri α	1	3 Feb. 18	23 29.6	57.5	16 3 30.6	2 11.0	4 24 27.1	+16 5 41.6
741*	"	1	3 Mar. 6	23 29.6	57.7	16 3 27.8	2 11.4	24 27.3	5 39.2
742	"		3 Apr. 9	23 29.2	58.2	16 3 28.8	2 12.1	24 27.4	5 40.9
743*	"	1	3 Sept. 9	23 32.8	55.4	16 3 42.3	2 2.0	24 28.2	5 44.3
744*	"		4 Mar. 23	23	54.2	16 3 41.2	2 3.2	24	5 44.4
745	"		4 June 21	23 33.2	54.0	16 3 39.3	2 1.4	24 27.2	5 40.7
746*	"		4 July 4	23 30.4	53.7	16 3 41.3	2 0.3	24 24.1	5 41.6
747	"		4 Oct. 2	23 36.6	51.0	16 3 52.7	1 52.6	24 27.6	5 45.3
748	"	1	4 Oct. 9	23 36.9	50.8	16 3 51.7	1 52.3	24 27.7	5 44.0
749	"	1	4 Oct. 13	23 36.7	50.7	16 3 49.4	1 52.2	24 27.4	5 41.6
750	"	1	5 Mar. 21	23 36.8	50.4	16 3 46.9	1 55.5	24 27.2	5 42.4
751	"	1	5 Mar. 23	23 37.5	50.5	16 3 41.5	1 55.6	24 28.0	5 37.1
752	90 Tauri c¹	5	4 Oct. 9	26 10.0	49.4	12 4 3.3	1 48.1	4 26 59.4	+12 5 51.4
753	93 Tauri c²	6	4 Oct. 9	28 6.9	49.4	11 45 46.0	1 45.8	4 28 56.3	+11 47 31.8
754*	94 Tauri τ		3 Mar. 6	29 14.9	60.4	22 31 36.9	2 1.1	4 30 15.3	+22 33 38.0
755	"		3 Sept. 9	29 18.1	58.1	22 31 46.4	1 56.7	30 16.2	33 43.1
756	"		4 Oct. 2	29 22.1	53.4	22 31 52.5	1 47.6	30 15.5	33 40.1
757*	654 Bradley	7	4 Oct. 9	32 45.1	53.5	23 13 8.5	1 43.3	4 33 38.6	+23 14 51.8
758	"	6.7	4 Oct. 13	32 45.6	53.4	+23 13 5.8	1 43.0	33 39.0	14 48.8
759	57 Eridani μ		3 Sept. 9	34 42.7	48.4	− 3 39 34.1	1 40.6	4 35 31.1	− 3 37 53.5
760	"		4 Oct. 2	34 46.3	44.5	− 3 39 26.3	1 33.3	35 30.8	37 51.0
761	173 Mayer	7	4 Oct. 13	36 8.4	51.6	+18 20 13.9	1 37.6	4 37 0.0	+18 21 51.5
762	96 Tauri	6.7	4 Oct. 9	37 27.2	50.8	15 30 59.0	1 35.2	4 38 18.0	+15 32 34.2
763	97 Tauri i	6	4 Oct. 13	38 49.2	51.7	18 27 37.6	1 34.3	4 39 40.9	+18 29 11.9
764	3 Orionis	5	4 Oct. 2	39 46.4	47.4	5 13 37.4	1 29.6	4 40 33.8	+ 5 15 7.0
765	Lalande 9195	7.8	4 Oct. 13	42 21.7	52.0	19 7 23.9	1 30.1	4 43 13.7	+19 8 54.0
766	Bessel, W. 1025	6	4 Oct. 2	43 11.1	48.2	7 25 10.7	1 25.9	4 43 59.3	+ 7 26 36.6
767	115 Argelander	7	4 Oct. 9	43 11.4	54.1	24 14 3.5	1 30.8	4 44 5.5	+24 15 34.3
768	Lalande 9256	7	4 Oct. 2	44 32.2	48.3	7 33 44.9	1 24.2	4 45 20.5	+ 7 35 9.1
769	179 Mayer	6.7	4 Oct. 9	44 47.7	53.9	23 35 56.6	1 28.6	4 45 41.6	+23 37 25.2
770	Bessel, W. 1199	8	4 Oct. 2	4 50 12.3	+ 50.4	+13 35 27.2	+ 1 19.0	4 51 2.7	+13 36 46.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
771*	102 Tauri ι	4	4 Oct. 9	4 50 15.9	+ 53.1	+21 16 12.2	+ 1 21.0	4 51 9.0	+21 17 33.2
772	"	4	4 Oct. 13	50 16.3	52.9	21 16 3.9	1 20.8	51 9.2	17 24.7
773	Piazzi 282	7	4 Oct. 13	51 34.3	52.8	20 57 44.4	1 19.2	4 52 27.1	+20 59 3.6
774	10 Aurigæ η		3 Sept. 9	51 23.4	68.0	40 55 17.2	1 33.4	4 52 31.4	+40 56 50.6
775	11 Orionis y^1	5	3 Feb. 18	52 11.5	57.2	15 5 11.6	1 31.4	4 53 8.7	+15 6 43.0
776	"	5.6	4 Oct. 2	52 17.9	51.0	15 5 30.1	1 16.8	53 8.9	6 46.9
777	186 Mayer	7	4 Oct. 15	52 52.6	52.2	19 29 52.3	1 17.2	4 53 44.8	+19 31 9.5
778	104 Tauri m	6	3 Feb. 18	54 40.1	58.5	18 20 18.7	1 26.8	4 55 38.6	+18 21 45.5
779	103 Tauri	6	4 Oct. 9	55 1.5	54.2	23 58 0.0	1 16.0	4 55 55.7	+23 59 16.0
780	"	6	4 Oct. 15	55 1.8	54.0	23 57 58.9	1 15.7	55 55.8	59 14.6
781	105 Tauri	7.6	4 Oct. 13	55 5.9	53.0	+21 24 22.6	1 24.9	4 55 58.9	+21 25 47.5
782	66 Eridani	6	4 Sept. 20	56 9.0	44.4	— 4 57 12.1	1 5.6	4 56 53.4	— 4 56 6.5
783	67 Eridani β	4	4 Oct. 2	57 17.9	43.9	— 5 22 18.3	1 4.3	4 58 1.8	— 5 21 14.0
784	15 Orionis y^2	6	4 Oct. 9	57 24.6	50.9	+15 18 33.4	1 10.4	4 58 15.5	+15 19 43.8
785	11 Aurigæ μ	6.5	4 Oct. 13	4 58 45.7	60.7	38 12 38.4	1 15.2	4 59 46.4	+38 13 53.6
786*	Anonyma	7.8	3 Feb. 18	5 0 32.7	73.6	45(54)		5 1 46.3	+45(55)
787	Capella	1	3 Feb. 18	0 42.7	73.6	45 45 36.6	1 9.1	5 1 56.3	+45 46 45.7
788	"		3 Mar. 17	(0)		45 45 40.4	1 9.2	(1)	46 49.6
789	"		3 Mar. 18	0 41.9	74.3	45 45 38.1	1 9.3	1 56.2	46 47.4
790*	"		3 Mar. 21	0 42.0	74.4	45 45 42.7	1 9.4	1.56.4	46 52.1
791	"		3 April 30	0 41.9	75.0	45 45 29.3	1 13.4	1 56.9	46 42.7
792	"		3 July 19	(0)		45 45 25.6	1 22.3	(1)	46 47.9
793*	"		3 Sept. 9	0 44.8	71.6	45 45 19.9	1 22.1	1 56.4	46 42.0
794*	"		4 Mar. 23	(0)		45 45 36.4	1 4.3	(1)	46 40.7
795*	"		4 June 5	0 46.3	70.0	45 45 32.3	1 13.2	1 56.3	46 45.5
796	"		4 June 8	0 46.2	70.0	45 45 34.6	1 13.6	1 56.2	46 48.2
797	"		4 June 16	0 46.3	69.8	45 45 38.6	1 14.5	1 56.1	46 53.1
798	"		4 July 4	0 46.9	69.3	45 45 29.0	1 16.4	1 56.2	46 45.4
799	"		4 July 14	(0)		45 45 22.5	1 17.1	(1)	46 39.6
800	"		4 Oct. 2	0 50.2	65.7	45 45 25.5	1 15.9	1 55.9	46 41.4
801	"	1	4 Oct. 9	0 50.4	65.5	45 45 26.5	1 15.2	1 55.9	46 41.7
802	"	1	4 Oct. 13	0 50.9	65.3	45 45 27.4	1 14.9	1 56.2	46 42.3
803	"	1	4 Oct. 15	0 50.8	65.2	45 45 27.0	1 14.7	1 56.0	46 41.7
804	"	1	5 Mar. 21	0 51.0	64.6	+45 45 49.0	1 0.0	1 55.6	46 49.0
805	729 Bradley	7	3 Feb. 18	3 9.4	48.0	— 8 25 13.3	1 23.5	5 3 57.4	— 8 23 49.8
806	Rigel		3 Feb. 18	4 8.4	48.0	8 28 0.5	1 22.0	5 4 56.4	— 8 26 38.5
807*	"		3 Mar. 17	4 7.4	48.5	8 28 0.8	1 22.6	4 55.9	26 38.2
808	"		3 Mar. 18	4 7.7	48.5	8 28 2.0	1 22.6	4 56.2	26 39.4
809	"		3 Mar. 21	4 7.4	48.5	8 28 3.7	1 22.5	4 55.9	26 41.2
810	"		3 April 4	(4)		8 28 6.3	1 22.0	(4)	26 44.3
811	"		3 April 30	4 7.2	49.0	8 27 57.8	1 19.6	4 56.2	26 38.2
812	"		3 July 19	4 9.1	48.2	8 27 47.8	1 5.6	4 57.3	26 42.2
813	"		3 Sept. 9	4 9.9	46.7	8 27 36.8	0 58.8	4 56.6	26 38.0
814	"		4 Mar. 23	4 11.0	45.4	8 27 56.1	1 17.6	4 56.4	26 38.5
815	"		4 June 5	4 9.9	45.8	8 27 47.6	1 9.4	4 55.7	26 38.2
816	"		4 June 16	(4)		8 27 49.6	1 7.3	(4)	26 42.3
817*	"		4 July 4	4 10.9	45.4	8 27 48.4	1 3.9	4 56.3	26 44.5
818	"		4 July 14	4 10.8	45.1	8 27 51.3	1 2.0	4 55.9	26 49.3
819*	"		4 Sept. 20	4 13.0	43.2	8 27 31.0	0 54.2	4 56.2	26 36.8
820*	"		4 Oct. 2	4 13.4	42.9	8 27 38.6	0 54.4	4 56.3	26 44.2
821*	"	1	4 Oct. 9	4 13.1	42.7	8 27 32.3	0 54.7	4 55.8	26 37.6
822	"	1	4 Oct. 13	4 13.5	42.6	8 27 31.9	0 55.0	4 56.1	26 36.9
823	"	1	4 Oct. 15	4 13.4	42.5	8 27 27.5	0 55.2	4 55.9	26 32.3
824	"	1	5 Mar. 21	4 13.8	42.2	8 27 54.1	1 13.8	4 56.0	26 40.3
825	"	1	5 Mar. 23	4 13.5	42.2	— 8 27 55.5	1 13.8	4 55.7	26 41.7
826	Piazzi 43	8.7	4 Oct. 9	7 38.4	52.6	+19 20 36.5	0 58.4	5 8 31.0	+19 21 34.9
827	"	7.6	4 Oct. 13	7 39.0	52.4	19 20 38.4	0 58.3	8 31.4	21 36.7
828	Johnson 1458	6.7	4 Oct. 15	7 46.0	62.3	40 47 51.0	1 4.6	5 8 48.3	+40 48 55.6
829	196 Mayer	6.7	4 Oct. 2	8 15.1	52.8	19 34 59.8	0 57.9	5 9 7.9	+19 35 57.7
830	"	7.8	4 Oct. 9	5 8 16.2	+ 52.6	+19 34 58.8	+ 0 57.7	5 9 8.8	+19 35 56.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
831	196 Mayer . .	6	4 Oct. 13	5 8 15.6	+ 52.5	+19 34 57.6	+ 0 57.6	5 9 8.1	+19 35 55.2
832	21 Aurigæ σ	5.6	4 Oct. 15	10 3.8	60.3	+37 10 0.9	1 0.7	5 11 4.1	+37 11 1.6
833	22 Orionis . .	6	4 Sept. 20	10 48.3	44.9	— 0 36 17.7	0 48.2	5 11 33.2	— 0 35 29.5
834	Piazzi 63 . .	6	4 Oct. 2	10 48.2	57.7	+30 55 33.8	0 58.5	5 11 45.9	+30 56 32.3
835	110 Tauri . .	6	4 Oct. 13	11 13.8	51.4	16 28 56.3	0 52.9	5 12 5.2	+16 29 49.2
836	112 Tauri β		3 Feb. 18	12 35.8	63.2	28 24 29.9	0 57.8	5 13 39.0	+28 25 27.7
837	" . . .		3 Mar. 17	12 35.6	63.6	28 24 29.6	0 58.0	13 39.2	25 27.6
838	" . . .		3 Mar. 18	12 35.9	63.7	28 24 29.5	0 58.0	13 39.6	25 27.5
839	" . . .		3 April 4	12 35.7	64.0	28 24 30.4	0 58.7	13 39.7	25 29.1
840	" . . .		3 April 5	12 35.8	64.0	28 24 28.1	0 58.6	13 39.8	25 26.7
841*	" . . .		3 April 9	12 35.7	64.0	28 24 29.2	0 58.7	13 39.7	28 25 27.9
842	" . . .		3 April 30	12 35.7	64.2	28 24 30.3	0 59.7	13 39.9	25 30.0
843	" . . .		3 Sept. 9	12 38.2	61.5	28 24 26.3	0 59.6	13 39.7	25 25.9
844*	" . . .		4 Mar. 23	12 40.3	59.6	28 24 35.0	0 54.0	13 39.9	25 29.0
845	" . . .		4 Oct. 2	12 43.5	56.5	28 24 35.5	0 55.1	13 40.0	25 30.6
846	" . . .	2	4 Oct. 9	12 43.4	56.3	28 24 33.9	0 54.8	13 39.7	25 28.7
847	" . . .	2	4 Oct. 15	12 43.4	56.1	28 24 33.2	0 54.7	13 39.5	25 27.9
848*	" . . .	2	5 Mar. 21	12 44.4	55.4	+28 24 37.4	0 50.9	13 39.8	25 28.3
849*	27 Orionis ρ²	6	4 Sept. 20	13 34.3	45.8	— 1 6 29.1	0 44.3	5 14 20.1	— 1 5 44.8
850	24 Orionis γ	2	3 Feb. 18	13 31.3	53.6	+ 6 8 15.6	1 3.9	5 14 24.9	+ 6 9 19.5
851	" . . .		3 April 4	13 30.1	54.3	6 8 15.9	1 4.3	14 24.4	9 20.2
852	" . . .		3 Sept. 9	13 33.6	52.2	6 8 32.6	0 50.5	14 25.8	9 23.1
853	" . . .		4 Mar. 23	13 34.2	50.6	6 8 21.8	1 0.5	14 24.8	9 22.3
854	" . . .	2	5 Mar. 21	13 37.6	47.0	6 8 25.6	0 57.5	14 24.6	9 23.1
855	113 Tauri . .	7.6	4 Oct. 13	13 41.0	51.4	16 29 43.6	0 49.7	5 14 32.4	+16 30 33.3
856	114 Tauri o	6	4 Oct. 9	14 44.4	53.6	21 44 19.5	0 50.1	5 15 38.0	+21 45 9.6
857	116 Tauri . .	7	4 Oct. 15	15 25.3	51.1	15 40 47.9	0 47.4	5 16 16.4	+15 41 35.3
858	118 Tauri . .	6	4 Oct. 2	16 3.2	55.1	24 57 36.5	0 49.8	5 16 58.3	+24 58 26.3
859	" . . .	6	4 Oct. 13	16 3.1	54.8	+24 57 30.7	0 49.3	16 57.9	58 20.0
860	31 Orionis . .	6.5	4 Oct. 15	18 50.0	45.1	— 1 16 14.3	0 38.1	5 19 35.1	— 1 15 36.2
861*	9 Leporis β		3 Mar. 17	18 57.8	43.2	—20 56 49.5	1 4.7	5 19 41.0	—20 55 44.8
862	25 Aurigæ χ		3 Feb. 18	18 38.9	65.1	+32 0 55.6	0 47.9	5 19 44.0	+32 1 43.5
863	Lalande 10346 .	8.9	4 Oct. 9	19 5.6	52.2	18 4 9.4	0 43.3	5 19 57.8	+18 4 52.7
864	119 Tauri . .	6	4 Oct. 9	19 37.3	52.3	+18 25 11.1	0 42.7	5 20 29.6	+18 25 53.8
865	34 Orionis δ	6	3 Mar. 6	20 56.2	51.3	— 0 28 28.4	0 55.7	5 21 47.5	— 0 27 32.7
866	" . . .		3 Mar. 17	20 56.0	51.5	0 28 27.2	0 55.8	21 47.5	27 31.4
867	" . . .		3 Mar. 18	20 55.9	51.5	0 28 31.6	0 55.8	21 47.4	27 35.8
868	" . . .		3 April 4	20 56.1	51.8	0 28 31.0	0 55.5	21 47.9	27 35.5
869*	" . . .		3 April 5	20 56.1	51.8	0 28 33.1	0 55.5	21 47.9	27 37.6
870	" . . .		4 Sept. 20	21 2.4	46.1	0 28 7.5	0 34.7	21 48.5	27 32.8
871	" . . .		4 Oct. 2	21 1.8	45.7	0 28 8.2	0 34.8	21 47.5	27 33.4
872	" . . .	2	4 Oct. 13	21 2.3	45.4	0 28 5.3	0 35.2	21 47.7	27 30.1
873	" . . .	2	4 Oct. 15	21 2.0	45.4	0 28 4.0	0 35.4	21 47.4	27 28.6
874	" . . .	2	5 Mar. 21	21 2.7	44.8	0 28 22.7	0 50.3	21 47.5	27 32.4
875	" . . .	2	5 April 5	21 2.6	45.0	— 0 28 20.5	0 50.0	21 47.6	27 30.5
876	120 Tauri . .	6.7	4 Oct. 9	20 56.8	52.3	+18 22 21.6	0 41.0	5 21 49.1	+18 23 2.6
877	11 Leporis α		3 Feb. 18	23 11.1	43.9	—17 59 30.1	0 56.9	5 23 55.0	—17 58 33.2
878	122 Tauri .	7	4 Oct. 15	24 35.4	51.6	+16 53 39.6	0 35.9	5 25 27.0	+16 54 15.5
879	42 Orionis c¹	6	4 Oct. 2	24 47.5	44.2	— 4 59 18.0	0 28.6	5 25 31.7	— 4 58 49.4
880	123 Tauri ζ		3 Mar. 6	24 41.8	60.0	+20 59 39.9	0 42.8	5 25 41.8	+21 0 22.7
881	" . . .		3 April 4	24 41.9	60.5	20 59 39.9	0 43.2	25 42.4	0 23.1
882*	" . . .		3 April 7	24 41.7	60.5	+20 59 36.2	0 43.2	25 42.2	0 19.4
883	46 Orionis ε		3 Mar. 17	25 13.3	51.1	— 1 21 18.9	0 49.9	5 26 4.4	— 1 20 29.0
884	" . . .		3 Mar. 18	25 13.2	51.1	1 21 21.0	0 49.8	26 4.3	20 31.2
885	" . . .		3 Mar. 21	25 12.9	51.2	1 21 21.5	0 49.9	26 4.1	20 31.6
886*	" . . .		3 April 4	(25)		1 21 20.5	0 49.6	(26)	20 30.9
887	" . . .		3 April 9	25 13.1	51.4	1 21 20.7	0 49.4	26 4.5	20 31.3
888	" . . .	2	4 Oct. 9	25 18.6	45.3	1 20 55.1	0 29.2	26 3.9	20 25.9
889	" . . .	2	4 Oct. 13	25 18.9	45.2	1 20 54.8	0 29.4	26 4.1	20 25.4
890	" . . .	2	5 April 5	5 25 19.3	+ 44.7	— 1 21 16.1	+ 0 44.9	5 26 4.0	— 1 20 31.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
891	46 Orionis ε	2	5 Mar. 14	5(25)		− 1 21 16.4	+ 0 45.1	5(26)	− 1 20 31.3
892	" . . .	2	5 Mar. 21	25 19.9	+ 44.4	− 1 21 14.9	0 45.2	26 4.3	20 29.7
893	125 Tauri . .	6.7	4 Oct. 15	26 25.1	55.1	+25 45 41.4	0 36.3	5 27 20.2	+25 46 17.7
894	48 Orionis σ	5.4	4 Oct. 2	27 57.9	45.0	− 2 44 1.3	0 25.2	5 28 42.9	− 2 43 36.1
895	50 Orionis ζ		3 Feb. 18	29 50.1	50.3	2 4 20.3	0 42.7	5 30 40.4	− 2 3 37.6
896	" . . .		3 Mar. 6	29 49.4	51.2	2 4 19.6	0 42.8	30 40.6	3 36.8
897	" . . .		3 Mar. 17	29 49.3	50.8	2 4 19.0	0 43.4	30 40.1	3 35.6
898	" . . .		3 Mar. 18	29 49.5	50.8	2 4 20.4	0 43.4	30 40.3	3 37.0
899	" . . .		3 April 4	29 49.7	51.1	2 4 22.9	0 43.1	30 40.8	3 39.8
900	" . . .		3 April 7	29 49.7	51.1	2 4 28.5	0 43.0	30 40.8	3 45.5
901	" . . .		3 April 30	29 48.7	51.4	2 4 20.2	0 41.5	30 40.1	3 38.7
902	" . . .		4 Mar. 23	29 52.6	47.5	2 4 14.5	0 41.0	30 40.1	3 33.5
903	" . . .		4 Sept. 20	29 55.5	45.6	2 3 58.4	0 22.6	30 41.1	3 35.8
904*	" . . .		4 Oct. 2	29 54.6	45.2	2 3 57.5	0 22.8	30 39.8	3 34.7
905	" . . .	2	4 Oct. 9	29 55.5	45.0	2 3 55.5	0 23.0	30 40.5	3 32.5
906	" . . .	2	4 Oct. 13	29 55.5	44.9	2 3 56.3	0 23.2	30 40.4	3 33.1
907	" . . .	2	5 Mar. 14	29 56.3	44.1	2 4 17.3	0 39.6	30 40.4	3 37.7
908	" . . .	2	5 Mar. 19	29 56.1	44.2	2 4 18.9	0 39.6	30 40.3	3 39.3
909	" . . .	2	5 Mar. 21	29 56.4	44.2	2 4 13.9	0 39.6	30 40.6	3 34.3
910	" . . .	2	5 April 5	29 56.0	44.4	2 4 14.7	0 39.3	30 40.4	3 35.4
911	Columbæ α		4 Sept. 20	31 52.3	32.7	−34 11 31.7	0 11.7	5 32 25.0	−34 11 20.0
912	128 Tauri . .	9.10	4 Oct. 13	32 31.1	51.4	+15 58 41.9	0 25.2	5 33 22.5	+15 59 7.1
913	" . . .		4 Oct. 15	32 31.9	51.3	15 58 44.3	0 25.3	33 23.2	59 9.6
914*	Bessel, W. 939 .	6.7	4 Oct. 2	32 55.3	50.5	+12 47 2.2	0 23.6	5 33 45.8	+12 47 25.8
915	12 Leporis . .		3 Mar. 6	33 7.4	42.1	−22 29 33.1	0 44.4	5 33 49.5	−22 28 48.7
916	129 Tauri . .	7	4 Oct. 9	34 24.2	51.4	+15 43 31.0	0 22.6	5 35 15.6	+15 43 53.6
917	" . . .	7	4 Oct. 13	34 24.3	51.3	15 43 30.8	0 22.7	35 15.6	43 53.5
918	130 Tauri . .		4 Oct. 15	34 54.1	52.0	+17 38 6.3	0 22.7	5 35 46.1	+17 38 29.0
919	13 Leporis γ		3 Feb. 18	35 26.8	41.8	−22 31 56.5	0 39.9	5 36 8.6	−22 31 16.6
920	" . . .		3 Mar. 6	35 26.1	42.1	22 31 56.0	0 41.0	36 8.2	31 15.0
921	" . . .		4 Sept. 20	35 30.5	38.0	−22 31 26.5	0 9.4	36 8.5	31 17.1
922	133 Tauri . .	6	4 Oct. 2	35 31.5	50.9	+13 48 30.0	0 20.6	5 36 22.4	+13 48 50.6
†923	Lalande 10975 .		5 Mar. 14	36 9.2	54.9	27 32 45.0	0 21.4	5 37 4.1	+27 33 6.4
924	32 Aurigæ ν	5	5 Mar. 19	36 37.8	60.6	+39 4 9.1	0 16.8	5 37 38.4	+39 4 25.9
925	53 Orionis κ		3 Mar. 1	37 29.3	47.4	− 9 45 41.7	0 34.4	5 38 16.7	− 9 45 7.3
926	" . . .		4 Mar. 23	(37)		− 9 45 34.5	0 33.0	(38)	45 1.5
927	134 Tauri . .	6	4 Oct. 15	37 27.6	50.1	+12 34 11.9	0 17.8	5 38 17.7	+12 34 29.7
928*	Piazzi 236 . .	6	4 Oct. 13	37 26.2	56.2	27 53 12.3	0 22.1	5 38 22.4	+27 53 34.4
929	Piazzi 239 . .	5.6	3 Sept. 25	38 8.1	53.3	9 47 28.6	0 16.7	5 39 1.4	+ 9 47 45.3
930	135 Tauri . .	7	4 Oct. 2	38 14.9	51.1	14 13 47.8	0 17.1	5 39 6.0	+14 14 4.9
931	" . . .	6	4 Oct. 9	38 15.8	50.9	14 13 44.7	0 17.1	39 6.7	14 1.8
932	136 Tauri . .	6	4 Sept. 20	39 49.6	56.9	27 32 42.0	0 19.8	5 40 46.5	+27 33 1.8
933	137 Tauri . .	6	4 Oct. 13	40 10.2	50.7	14 6 13.6	0 14.6	5 41 0.9	+14 6 28.2
934	" . . .	6	4 Oct. 15	40 9.8	50.7	14 6 15.4	0 14.7	41 0.5	6 30.1
935	54 Orionis χ^1		3 Mar. 1	41 32.8	59.5	20 13 10.2	0 18.5	5 42 32.3	+20 13 28.7
936	" . . .		5 Mar. 14	41 40.4	51.9	20 13 14.0	0 16.9	42 32.3	13 30.9
937	" . . .		5 Mar. 19	41 41.0	51.8	+20 13 10.5	0 17.0	42 32.8	13 27.5
938*	15 Leporis δ		3 Mar. 6	42 0.2	42.7	−20 54 41.3	0 30.9	5 42 42.9	−20 54 10.4
939*	58 Orionis α		3 Feb. 18	43 26.8	54.0	+ 7 21 6.0	0 19.8	5 44 20.8	+ 7 21 25.8
940	" . . .		3 Feb. 26	43 26.7	54.1	7 21 1.6	0 20.0	44 20.8	21 21.6
941	" . . .		3 Mar. 1	43 26.4	54.2	7 21 5.7	0 20.2	44 20.6	21 25.9
942	" . . .		3 Mar. 6	43 26.5	54.2	7 21 6.1	0 20.2	44 20.7	21 26.3
943	" . . .		3 Mar. 9	43 26.3	54.3	7 21 4.5	0 20.3	44 20.6	21 24.8
944*	" . . .		3 Mar. 17	43 26.9	54.4	7 21 3.2	0 20.3	44 21.3	21 23.5
945	" . . .		3 Mar. 18	43 26.2	54.4	7 21 4.5	0 20.3	44 20.6	21 24.8
946	" . . .		3 Mar. 21	43 25.2	54.5	7 21 4.2	0 20.3	44 19.7	21 24.5
947	" . . .		3 April 4	43 26.1	54.7	7 21 3.1	0 20.2	44 20.8	21 23.3
948	" . . .		3 April 5	43 25.9	54.7	7 21 0.7	0 20.2	44 20.6	21 20.9
949	" . . .		3 April 7	43 26.3	54.7	7 21 0.4	0 20.2	44 21.0	21 20.6
950	" . . .		3 April 9	5 43 25.8	+ 54.8	+ 7 21 3.4	+ 0 20.1	5 44 20.6	+ 7 21 23.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
951	58 Orionis α		3 April 16	5 43 25.7	+ 54.9	+ 7 21 2.6	+ 0 19.9	5 44 20.6	+45 21 22.5
952	" . . .		3 April 30	43 25.8	55.0	7 21 4.2	0 19.4	44 20.8	21 23.6
953	" . . .		4 Oct. 2	43 32.4	48.6	7 21 20.6	0 7.8	44 21.0	21 28.4
954	Lalande 11198,9	7.6	4 Oct. 13	43 46.6	54.7	24 12 5.1	0 13.2	5 44 41.3	+24 12 18.3
955	34 Aurigæ β		4 Mar. 23	43 42.7	69.1	44 54 34.1	0 5.9	5 44 51.8	+44 54 40.0
956	" . . .		4 Sept. 20	43 45.8	66.5	44 54 13.4	0 20.5	44 52.3	54 33.9
957	" . . .	2	4 Oct. 15	43 45.9	65.5	44 54 12.4	0 19.9	44 51.4	54 32.3
958	" . . .	2	5 Mar. 14	43 47.9	64.1	44 54 28.1	0 5.6	44 52.0	54 33.7
959	35 Aurigæ π	6	5 Mar. 21	44 0.4	64.9	45 54 3.3	0 5.1	5 45 5.3	+45 54 8.4
960	139 Tauri . .	6	4 Oct. 9	44 39.6	55.6	25 54 40.8	0 12.6	5 45 35.2	+25 54 53.4
961	36 Aurigæ . .		5 Mar. 14	(44)		47 52 12.5	0 4.4	5(45)	+47 52 16.9
962	37 Aurigæ θ		3 Sept. 25	44 58.7	66.0	37 10 40.8	0 16.6	5 46 4.7	+37 10 57.4
963	Lalande 11252,3	7	4 Oct. 9	45 34.7	55.5	25 44 27.0	0 11.4	5 46 30.2	+25 44 38.4
964	" . . .	7.8	4 Oct. 13	45 34.7	55.4	25 44 26.2	0 11.4	46 30.1	44 37.6
965*	140 Tauri . .	7.8	3 Mar. 9	47 19.7	60.8	22 52 18.9	0 9.1	5 48 20.5	+22 52 28.0
966	" . . .	8	4 Oct. 2	47 26.0	54.5	22 52 22.3	0 8.0	48 20.5	52 30.3
967*	" . . .	7.8	4 Oct. 15	47 26.6	54.1	22 52 23.4	0 8.1	48 20.7	52 31.5
968	38 Aurigæ . .		5 Mar. 14	47 50.0	62.7	42 54 3.1	0 1.1	5 48 52.7	+42 54 4.2
969	141 Tauri . .	7.8	4 Oct. 13	48 42.8	54.0	22 22 45.1	+ 0 5.2	5 49 36.8	+22 22 50.3
970	39 Aurigæ . .		5 Mar. 14	49 37.8	62.8	42 58 49.7	— 0 1.2	5 50 40.6	+42 58 48.5
971	1 Geminorum h		3 Feb. 26	50 57.1	60.8	23 15 29.8	+ 0 3.7	5 51 57.9	+23 15 33.5
972	" . . .		3 Mar. 6	50 56.9	60.9	23 15 36.6	0 3.6	51 57.8	15 40.2
973	" . . .		3 Mar. 9	50 56.6	61.0	23 15 33.0	0 3.7	51 57.6	15 36.7
974	" . . .		3 Mar. 17	50 56.5	61.1	23 15 33.3	0 3.6	51 57.6	15 36.9
975*	" . . .		3 Mar. 18	50 56.7	61.1	23 15 34.1	0 3.5	51 57.8	15 37.6
976	" . . .		3 Mar. 21	50 56.1	61.2	23 15 34.9	0 3.7	51 57.3	15 38.6
977	" . . .	6	4 Oct. 2	51 2.9	54.7	23 15 37.8	0 3.4	51 57.6	15 41.2
978	" . . .	4	4 Oct. 9	51 3.2	54.5	23 15 36.9	0 3.4	51 57.7	15 40.3
979	" . . .		4 Oct. 13	51 3.6	54.4	23 15 33.8	0 3.4	51 58.0	15 37.2
980	" . . .	5	4 Oct. 15	51 3.2	54.3	23 15 34.1	0 3.5	51 57.5	15 37.6
981	" . . .	5	5 Mar. 14	(51)		23 15 32.5	0 3.8	(51)	15 36.3
982	" . . .	5	5 Mar. 19	51 5.0	53.1	23 15 31.0	0 4.0	51 58.1	15 35.0
983	" . . .	5	5 Mar. 21	51 4.7	53.1	23 15 32.9	+ 0 4.0	51 57.8	15 36.9
984	2 Geminorum .	7.8	3 Mar. 9	53 35.6	61.1	23 38 34.9	— 0 0.3	5 54 36.7	+23 38 34.6
985	" . . .	7.8	4 Oct. 9	53 42.9	54.7	23 38 27.1	0 0.0	54 37.6	38 27.1
986	" . . .	7.8	4 Oct. 13	53 42.7	54.5	23 38 34.5	+ 0 0.1	54 37.2	38 34.6
987	" . . .	7.8	4 Oct. 15	53 42.0	54.5	23 38 33.7	+ 0 0.4	54 36.5	38 34.1
988	Lalande 11563 .	7	4 Oct. 2	54 31.3	52.0	16 22 26.2	— 0 3.6	5 55 23.3	+16 22 22.6
989	235 Mayer . .	7.8	3 Feb. 26	56 28.9	60.3	22 12 30.5	0 4.0	5 57 29.2	+22 12 26.5
990*	" . . .		3 Mar. 1	56 28.8	60.3	22 12 37.8	0 4.0	57 29.1	12 33.8
991	" . . .	7.8	3 Mar. 6	56 28.4	60.4	22 12 34.6	0 4.1	57 28.8	12 30.5
992	" . . .	7.6	4 Oct. 15	56 34.8	53.9	22 12 32.7	0 4.1	57 28.7	12 28.6
993	" . . .	7.8	5 Mar. 14	56 36.8	52.6	22 12 30.1	0 2.8	57 29.4	12 27.3
994	3 Geminorum .	7	4 Oct. 2	56 40.5	54.7	23 8 0.8	0 4.0	5 57 35.2	+23 7 56.8
995	" . . .	7	4 Oct. 9	56 41.2	54.5	23 7 58.2	0 4.0	57 35.7	7 54.2
996	" . . .	8	5 Mar. 14	56		23 7 58.4	0 3.2	57	7 55.2
997	5 Geminorum .	6	3 Sept. 25	58 16.9	59.5	24 27 6.6	0 6.7	5 59 16.4	+24 26 59.9
998	" . . .	6	4 Oct. 13	58 21.2	54.9	24 27 4.1	0 5.7	59 16.1	26 58.4
999	Lalande 11734 .	7	5 Mar. 14	58 57.2	52.4	21 53 58.3	0 5.7	5 59 49.6	+21 53 52.6
1000	68 Orionis . .		3 Feb. 18	59 11.4	59.1	19 49 22.4	0 6.2	6 0 10.5	+19 49 16.2
1001	6 Geminorum .	7	4 Oct. 9	59 17.4	54.4	22 56 28.6	0 7.5	6 0 11.8	+22 56 21.1
1002	" . . .	6	4 Oct. 15	5 59 16.9	54.2	22 56 28.9	0 7.4	0 11.1	56 21.5
1003	Lalande 11791 .	7	4 Oct. 2	6 0 55.5	52.9	18 43 23.8	0 11.2	6 1 48.4	+18 43 12.6
1004	44 Aurigæ κ	4.5	5 Mar. 21	1 41.9	55.8	29 33 42.1	0 11.8	6 2 37.7	+29 33 30.3
1005	7 Geminorum η		3 Feb. 18	1 47.8	60.3	22 33 13.6	0 11.8	6 2 48.1	+22 33 1.8
1006	" . . .		3 Feb. 26	1 48.1	60.4	22 33 11.6	0 11.9	2 48.5	32 59.7
1007	" . . .		3 Mar. 1	1 47.5	60.4	22 33 12.9	0 11.9	2 47.9	33 1.0
1008	" . . .		3 Mar. 6	1 47.5	60.5	22 33 13.6	0 12.0	2 48.0	33 1.6
1009	" . . .		3 Mar. 9	1 47.3	60.6	22 33 14.4	0 11.9	2 47.9	33 2.5
1010	" . . .		3 Mar. 17	6 1 47.1	+ 60.7	+22 33 15.1	— 0 12.1	6 2 47.8	+22 33 3.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1011	7 Geminorum η		3 Mar. 18	6 1 47.6	+ 60.7	+22 33 14.8	− 0 12.1	6 2 48.3	+22 33 2.7
1012	"		3 Mar. 21	1 47.4	60.8	22 33 15.5	0 12.2	2 48.2	33 3.3
1013	"		3 April 4	1 47.3	61.0	22 33 12.3	0 11.9	2 48.3	33 0.4
1014	"		3 Sept. 25	1 49.6	58.7	22 33 17.1	0 12.4	2 48.3	33 4.7
1015	"	4.5	4 Oct. 9	1 54.1	54.3	22 33 14.3	0 11.1	2 48.4	33 3.2
1016	"	4.5	4 Oct. 13	1 54.5	54.1	22 33 12.0	0 11.0	2 48.6	33 1.0
1017	"	4.5	4 Oct. 15	1 54.0	54.1	22 33 15.9	0 10.9	2 48.1	33 5.0
1018	"	4	5 Mar. 14	1 55.7	52.7	22 33 16.5	0 9.7	2 48.4	33 6.8
1019	9 Geminorum	8	3 Mar. 9	3 45.2	61.1	23 47 56.3	0 15.2	6 4 46.3	+23 47 41.1
1020	"	7.8	3 Mar. 17	3 45.0	61.3	23 47 53.0	0 15.5	4 46.3	47 37.5
1021	"	7	3 Mar. 18	3 45.2	61.3	23 47 51.8	0 15.5	4 46.5	47 36.3
1022	"	7	4 Oct. 2	3 51.8	55.1	23 47 53.7	0 13.2	4 46.9	47 40.5
1023	10 Geminorum	7.8	3 Feb. 18	5 41.3	60.8	23 40 13.1	0 17.8	6 6 42.1	+23 39 55.3
1024	"	7	4 Oct. 9	5 48.2	54.7	23 40 9.1	0 15.8	6 42.9	39 53.3
1025	"	7	4 Oct. 13	5 48.6	54.6	23 40 9.2	0 15.7	6 43.2	39 53.5
1026*	11 Geminorum	7	4 Oct. 13	6 14.2	54.6	23 32 22.4	0 16.3	6 7 8.8	+23 32 6.1
1027	12 Geminorum	7	3 Feb. 26	6 12.1	60.7	23 20 39.5	0 18.5	6 7 12.8	+23 20 21.0
1028	Lalande 12053	7	4 Oct. 15	7 40.3	53.5	21 10 9.5	0 18.9	6 8 33.8	+21 9 50.6
1029	Lalande 12057	6	5 Mar. 14	7 50.4	49.7	14 43 36.5	0 14.5	6 8 40.1	+14 43 22.0
1030	"	4.5	5 Mar. 19	(7)		14 43 28.9	0 14.3	6 (8)	+14 43 14.6
1031	248 Mayer	7	4 Oct. 15	8 22.8	53.5	21 12 54.1	0 19.8	6 9 16.3	+21 12 34.3
1032	13 Geminorum μ		3 Feb. 18	9 51.2	60.3	22 36 33.6	0 23.5	6 10 51.5	+22 36 10.1
1033	"		3 Feb. 26	9 51.2	60.4	22 36 30.0	0 23.6	10 51.6	36 6.4
1034	"		3 Mar. 6	9 51.0	60.5	22 36 32.0	0 23.7	10 51.5	36 8.3
1035	"		3 Mar. 9	9 50.8	60.5	22 36 33.1	0 23.7	10 51.3	36 9.4
1036	"		3 Mar. 17	9 50.5	60.7	22 36 34.4	0 23.8	10 51.2	36 10.6
1037	"		3 Mar. 18	9 50.5	60.7	22 36 32.8	0 23.8	10 51.2	36 9.0
1038	"		3 Mar. 21	9 50.6	60.8	22 36 34.1	0 23.8	10 51.4	36 10.3
1039*	"		3 April 4	9 50.5	61.0	22 36 35.9	0 23.8	10 51.5	36 12.1
1040	"		3 April 9	9 50.4	61.2	22 36 32.2	0 23.7	10 51.6	36 8.5
1041	"		3 Sept. 25	9 52.9	58.8	22 36 31.5	0 23.8	10 51.7	36 7.7
1042	"		4 Oct. 2	9 57.2	54.5	22 36 32.9	0 21.7	10 51.7	36 11.2
1043	"	3	4 Oct. 9	9 57.2	54.3	22 36 28.8	0 21.6	10 51.5	36 7.2
1044	"	5	5 Mar. 14	9 59.8	52.6	22 36 30.3	0 20.0	10 52.4	36 10.3
1045	"	3*	5 Mar. 21	9 58.8	52.8	+22 36 27.8	0 19.9	10 51.6	36 7.9
1046	1 Canis Majoris ζ	3	5 Mar. 19	12 5.8	33.4	−29 58 59.2	0 6.3	6 12 39.2	−29 59 5.5
1047	"	3	5 Mar. 21	(12)		−29 59 1.6	0 6.3	(12)	59 7.9
1048*	Piazzi 87	6.7	3 Feb. 18	12 19.4	60.7	+23 32 47.4	0 27.4	6 13 20.1	+23 32 20.0
1049	"	7.8	3 Mar. 9	12 20.6	61.0	23 32 44.7	0 27.7	13 21.6	32 17.1
1050	"	7	3 Mar. 18	12 21.4	61.1	23 32 46.7	0 27.8	6 13 22.5	+23 32 18.9
1051	Piazzi 89	7	3 Mar. 17	12 22.3	61.0	23 25 50.6	0 27.8	6 13 23.3	+23 25 22.8
1052	"	7	4 Oct. 9	12 29.3	54.7	23 25 43.8	0 24.6	13 24.0	25 19.2
1053	"	6	4 Oct. 13	12 28.6	54.5	23 25 48.5	0 24.5	13 23.1	25 24.0
1054	"	6	4 Oct. 15	12 28.4	54.4	23 25 52.2	0 24.4	13 22.8	25 27.8
1055	"	7.8	5 Mar. 14	12 30.0	52.9	23 25 49.4	0 23.4	13 22.9	25 26.0
1056	14 Geminorum	7.8	3 Feb. 26	12 43.0	60.0	21 44 55.0	0 27.5	6 13 43.0	+21 44 27.5
1057	15 Geminorum	7	5 Mar. 14	14 59.5	51.9	20 54 24.0	0 25.7	6 15 51.4	+20 53 58.3
1058	16 Geminorum	6.7	4 Oct. 13	15 9.5	53.4	20 36 37.9	0 28.9	6 16 2.9	+20 36 9.0
1059	"	6	4 Oct. 15	15 9.8	53.3	20 36 42.9	0 28.8	16 3.1	36 14.1
1060	18 Geminorum ν	4	4 Oct. 13	16 11.8	53.3	20 19 58.2	0 30.4	6 17 5.1	+20 19 27.8
1061	"	4	4 Oct. 15	16 11.6	53.2	20 20 1.2	0 30.3	17 4.8	19 30.9
1062	"	4	5 Mar. 19	16 13.7	51.8	20 19 52.8	0 27.0	17 5.5	19 25.8
1063*	Bessel, W.655	7.6	4 Oct. 9	18 42.0	52.2	17 4 37.9	0 34.5	6 19 34.2	+17 4 3.4
1064	"	6	4 Oct. 15	18 42.5	52.0	17 4 31.4	0 34.6	19 34.5	3 56.8
1065	Lalande 12454	8	3 Mar. 6	18 17.4	58.2	17 33 13.5	0 35.0	6 19 45.6	+17 32 38.5
1066	Lalande 12462	7.8	3 Mar. 17	18 55.6	60.5	22 19 22.7	0 37.0	6 19 56.1	+22 18 45.7
1067	19 Geminorum	6.7	4 Oct. 13	19 15.6	51.6	16 2 24.3	0 35.8	6 20 7.2	+16 1 48.5
1068	20 Geminorum	7	5 Mar. 19	19 47.1	50.8	17 54 50.5	0 30.7	6 20 37.9	+17 54 19.8
1069	21 Geminorum	7	5 Mar. 14	19 47.6	50.7	17 55 12.7	0 30.7	6 20 38.3	+17 54 42.0
1070*	Lalande 12539	7.8	3 Feb. 26	6 21 5.9	+ 60.1	+22 16 36.3	− 0 39.7	6 22 6.0	+22 15 56.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1071	Lalande 12539 .	7.8	3 Mar. 18	6 21 4.3	+ 60.8	+22 16 29.3	— 0 40.7	6 22 5.1	+22 15 49.2
1072	49 Aurigæ . .	5.6	4 Oct. 15	21 39.3	56.5	28 10 24.8	0 34.7	6 22 35.8	+28 9 50.1
1073	22 Geminorum .	7.8	4 Oct. 9	21 57.9	53.1	19 34 45.6	0 38.3	6 22 51.0	+19 34 7.3
1074*	258 Mayer . .	7	3 Mar. 6	22 24.1	57.7	16 21 30.8	0 39.9	6 23 21.8	+16 20 50.9
1075	" . . .	7	4 Oct. 13	22 30.2	51.8	16 21 28.5	0 40.0	23 22.0	20 48.5
1076	" . . .	6.7	5 Mar. 19	22 31.8	50.2	16 21 22.4	0 33.6	23 22.0	20 48.8
1077	" . . .	7	5 Mar. 21	22		16 21 27.5	0 33.6	23	20 53.9
†1078			3 Mar. 17	22 54.2	60.4	22 16 29.6	0 42.7	6 23 54.6	+22 15 46.9
1079	23 Geminorum .	7.8	4 Oct. 13	23 35.1	52.0	16 57 22.5	0 41.2	6 24 27.1	+16 56 41.3
1080	" . . .	7	5 Mar. 14	23 36.3	50.4	16 57 21.1	0 35.2	24 26.7	56 45.9
1081*	50 Aurigæ . .	5.6	5 Mar. 21	23 59.9	62.4	42 39 44.4	0 45.3	6 25 2.3	+42 38 59.1
1082	Lalande 12660 .		3 Feb. 18	24 40.5	60.6	23 46 14.8	0 45.3	6 25 41.1	+23 45 29.5
1083	" . . .	7	3 Mar. 18	24 40.5	61.1	23 46 16.6	0 45.8	25 41.6	45 30.8
1084	" . . .	7	3 Mar. 21	24 40.1	61.1	23 46 19.3	0 45.9	25 41.2	45 33.4
1085	53 Aurigæ . .	6	4 Oct. 15	24 44.3	56.9	29 9 9.2	0 38.3	6 25 41.2	+29 8 30.9
1086	24 Geminorum γ		3 Feb. 18	(25)		16 34 10.3	0 44.0	6(26)	+16 33 26.3
1087	" . . .		3 Feb. 26	25 11.6	57.6	16 34 5.6	0 44.0	26 9.2	33 21.6
1088	" . . .		3 Mar. 6	25 11.5	57.7	16 34 8.5	0 43.9	26 9.2	33 24.6
1089	" . . .		3 Apr. 4	25 11.1	58.2	16 34 6.3	0 44.1	26 9.3	33 22.2
1090	" . . .		3 Apr. 5	25 10.9	58.2	16 34 5.4	0 44.1	26 9.1	33 21.3
1091	" . . .		3 Apr. 9	25 10.8	58.3	16 34 7.7	0 44.2	26 9.1	33 23.5
1092	" . . .		3 Apr. 16	25 10.8	58.4	16 34 3.8	0 44.2	26 9.2	33 19.6
1093	" . . .		3 Apr. 30	25 10.7	58.6	16 34 9.6	0 44.4	26 9.3	33 25.2
1094	" . . .		3 Sept. 25	25 12.9	56.2	16 34 9.6	0 47.6	26 9.1	33 22.0
1095*	" . . .		4 Mar. 22	25 15.4	54.1	16 34 3.8	0 41.0	26 9.5	33 22.8
1096*	" . . .		4 Mar. 23	25 15.2	54.2	16 34 5.0	0 41.0	26 9.4	33 23.9
1097	" . . .		4 Mar. 26	25 14.4	54.2	16 34 6.4	0 41.1	26 8.6	33 25.3
1098	" . . .		4 Sept. 24	25 16.6	52.4	16 34 7.5	0 44.2	26 9.0	33 23.3
1099	" . . .		4 Oct. 2	25 17.3	52.2	16 34 5.4	0 43.9	26 9.5	33 21.5
1100	" . . .	2.3	4 Oct. 9	25 17.3	52.0	16 34 6.1	0 43.7	26 9.3	33 22.4
1101	" . . .	3	4 Oct. 13	25 18.1	51.8	16 34 7.7	0 43.5	26 9.9	33 24.2
1102	" . . .	5	5 Mar. 14	(25)		16 34 3.9	0 37.2	(26)	33 26.7
1103	" . . .	2.3	5 Mar. 19	25 19.0	50.2	16 33 56.1	0 37.2	26 9.2	33 18.9
1104	" . . .	2.3	5 Mar. 21	25 19.3	50.3	16 34 1.5	0 37.2	26 9.6	33 24.3
1105	55 Aurigæ . .		4 Mar. 23	(27)		44 42 54.8	0 53.9	6(28)	+44 42 0.9
1106	" . . .	5	5 Mar. 19	27 28.2	63.6	44 42 48.0	0 49.6	28 31.8	41 58.4
1107	" . . .	5	5 Mar. 21	27 27.1	63.6	44 42 52.4	0 49.6	28 30.7	42 2.8
1108	25 Geminorum .	7	4 Oct. 9	27 47.6	56.8	28 22 42.1	0 42.8	6 28 44.4	+28 21 59.3
1109*	261 Mayer . .	7.8	3 Feb. 26	28 52.2	57.6	16 34 59.3	0 49.3	6 29 49.8	+16 34 10.0
1110	" . . .	6	4 Oct. 15	28 57.4	51.8	16 35 4.0	0 58.6	29 49.2	34 5.4
1111	Groombridge 1213	6	5 Mar. 19	29 8.4	63.5	44 42 10.0	0 51.7	6 30 11.9	+44 41 18.3
1112	26 Geminorum .		3 Feb. 18	29 47.4	58.0	17 50 31.1	0 51.0	6 30 45.4	+17 49 40.1
1113	" . . .		3 Mar. 6	29 46.7	58.2	17 50 29.3	0 51.1	30 44.9	49 38.2
1114	27 Geminorum ε		3 Feb. 18	30 35.4	61.3	25 19 48.1	0 54.2	6 31 36.7	+25 18 53.9
1115	" . . .		3 Mar. 6	30 35.4	61.5	25 19 49.7	0 54.7	31 36.9	18 55.0
1116	" . . .		3 Mar. 18	30 35.4	61.7	25 19 48.2	0 54.9	31 37.1	18 53.3
1117	" . . .		3 Mar. 21	30 35.2	61.8	25 19 49.8	0 55.0	31 37.0	18 54.8
1118	" . . .		3 Apr. 4	30 35.3	62.0	25 19 48.2	0 55.1	31 37.3	18 53.1
1119	" . . .		3 Sept. 25	30 37.5	60.0	25 19 45.8	0 52.0	31 37.5	18 53.8
1120	" . . .		4 Mar. 23	30 39.9	57.7	25 19 44.8	0 51.5	31 37.6	18 53.3
1121	" . . .		4 Mar. 26	30 38.7	57.8	25 19 44.1	0 51.5	31 36.5	18 52.6
1122	" . . .		4 Sept. 24	30 40.9	56.0	25 19 41.3	0 48.1	31 36.9	18 53.2
1123	" . . .		4 Oct. 2	30 41.5	55.7	25 19 41.8	0 47.8	31 37.2	18 54.0
1124	" . . .	3	4 Oct. 9	30 41.8	55.5	25 19 41.5	0 47.7	31 37.3	18 53.8
1125	" . . .	3	4 Oct. 13	30 42.0	55.3	25 19 38.2	0 47.5	31 37.3	18 50.7
1126	" . . .	3	5 April 5	30 42.5	53.9	25 19 41.5	0 47.1	31 36.4	18 54.4
1127	56 Aurigæ . .	6	5 Mar. 21	31 15.6	62.9	43 46 31.5	0 54.1	6 32 18.5	+43 45 37.4
1128	31 Geminorum ξ^2		4 Mar. 23	33 11.0	52.8	13 6 45.5	0 50.6	6 34 3.8	+13 5 54.9
1129	" . . .		4 Mar. 26	33 11.0	52.8	13 6 45.4	0 50.6	34 3.8	5 54.8
1130	Rümker 1993 .	6	5 Mar. 21	6 35 9.3	+ 59.3	+37 44 10.0	— 0 56.9	6 36 8.6	+37 43 13.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1131	Rümker 1993 .	7	5 Mar. 23	6 35 8.6	+ 59.4	+37 44 10.4	— 0 57.0	6 36 8.0	+37 43 13.4
1132	Sirius		3 Feb. 18	35 36.0	44.3	—16 25 54.4	0 50.8	6 36 20.3	—16 26 45.2
1133	" . . .		3 Feb. 26	35 36.3	44.4	16 25 56.0	0 49.9	36 20.7	26 45.9
1134	" . . .		3 Mar. 6	35 36.1	44.5	16 25 58.2	0 49.2	36 20.6	26 47.4
1135	" . . .		3 Mar. 18	35 36.1	44.7	16 25 58.3	0 48.6	36 20.8	26 46.9
1136	" . . .		3 Mar. 21	35 35.7	44.8	16 26 1.8	0 48.5	36 20.5	26 50.3
1137	" . . .		3 April 4	35 35.8	45.0	16 26 4.3	0 48.5	36 20.8	26 52.8
1138	" . . .		3 April 9	35 35.6	45.1	16 26 2.7	0 48.7	36 20.7	26 51.4
1139*	" . . .		3 April 16	35 35.5	45.2	16 26 0.9	0 49.1	36 20.7	26 50.0
1140	" . . .		3 April 19	35 35.7	45.3	16 26 5.1	0 49.2	36 21.0	26 54.3
1141	" . . .		3 April 28	35 34.9	45.4	16 26 2.2	0 50.0	36 20.3	26 52.2
1142	" . . .		3 April 29	35 35.1	45.4	16 26 0.3	0 50.1	36 20.5	26 50.4
1143	" . . .		3 April 30	35 35.1	45.5	16 26 1.1	0 50.2	36 20.6	26 51.3
1144	" . . .	1	3 May 15	35 35.5	45.6	16 26 2.5	0 52.0	36 21.1	26 54.5
1145	" . . .	1	3 Sept. 25	35 37.1	43.6	16 25 30.8	0 72.7	36 20.7	26 43.5
1146	" . . .	1	4 Mar. 22	35 39.2	41.8	16 26 5.5	0 44.5	36 21.0	26 50.0
1147*	" . . .		4 Mar. 23	35 38.5	41.8	16 26 2.3	0 44.4	36 20.3	26 46.7
1148	" . . .		4 Mar. 26	35 39.0	41.9	16 26 3.9	0 44.5	36 20.9	26 48.4
1149*	" . . .		4 June 16	35 38.0	42.7	16 25 56.5	0 46.8	36 20.7	26 43.3
1150	" . . .		4 Sept. 24	35 40.0	40.7	16 25 39.1	0 68.3	36 20.7	26 47.4
1151	" . . .		4 Oct. 2	35 40.0	40.4	16 25 43.1	0 68.1	36 20.4	26 51.2
1152	" . . .	1	4 Oct. 9	35 40.1	40.2	16 25 38.9	0 67.8	36 20.3	26 46.7
1153	" . . .	1	4 Oct. 13	35 40.4	40.1	16 25 40.4	0 67.6	36 20.5	26 48.0
1154	" . . .	1	4 Oct. 15	35 40.2	40.1	16 25 36.9	0 67.3	36 20.3	26 44.2
1155	" . . .	1	5 Mar. 14	35 41.8	38.7	16 26 9.5	0 40.0	36 20.5	26 49.5
1156	" . . .	1	5 Mar. 19	35 41.8	38.8	16 26 10.3	0 39.7	36 20.6	26 50.0
1157	" . . .	1	5 Mar. 30	35 42.1	39.0	16 26 11.9	0 39.6	36 21.1	26 51.5
1158	" . . .	1	5 April 5	35 41.4	39.2	—16 26 13.7	0 39.6	36 20.6	26 53.3
1159	58 Aurigæ . .	4.5	5 Mar. 21	35 34.5	61.7	+42 1 5.5	0 58.9	6 36 36.2	+42 0 6.6
1160	35 Geminorum .		4 Mar. 22	(38)		13 38 45.1	0 55.9	6(39)	+13 37 49.2
1161	59 Aurigæ . .	6	5 Mar. 21	38 15.3	60.0	39 6 33.5	0 61.2	6 39 15.3	+39 5 32.3
1162	" . . .	6	5 Mar. 23	38 15.1	60.0	39 6 29.1	0 61.3	39 15.1	5 27.8
1163	36 Geminorum d		3 Feb. 26	38 33.7	59.8	22 0 1.9	0 64.8	6 39 33.5	+21 58 57.1
1164	34 Geminorum θ	4	5 Mar. 14	38 38.5	57.3	34 12 20.4	0 59.9	6 39 35.8	+34 11 20.5
1165	61 Aurigæ . .	6	4 Oct. 9	39 11.6	61.9	38 44 57.6	0 54.0	6 40 13.5	+38 44 3.6
1166	Johnson 1841. .	6	5 Mar. 21	40 39.1	64.5	46 31 48.3	0 66.5	6 41 43.6	+46 30 41.8
1167*	37 Geminorum .	6	4 Oct. 9	42 4.4	55.6	25 37 45.6	0 61.6	6 43 0.0	+25 36 44.0
1168	16 Lyncis . .		4 Mar. 22	41 51.7	68.5	45 21 27.7	0 73.4	6 43 0.2	+45 20 14.3
1169	" . . .		4 Mar. 23	41 51.4	68.5	45 21 31.6	0 73.4	42 59.9	20 18.0
1170	" . . .	6	5 Mar. 19	41 56.9	63.6	45 21 20.8	0 67.9	43 0.5	20 12.9
1171	" . . .	6	5 Mar. 21	41 56.2	63.7	45 21 24.9	0 67.9	42 59.9	20 17.0
1172	38 Geminorum e		3 Mar. 6	42 25.3	56.3	13 26 15.2	0 67.8	6 43 21.6	+13 25 7.4
1173*	" . . .	6	4 Oct. 13	42 30.7	50.7	13 26 15.2	0 67.1	43 21.4	25 8.1
1174	" . . .	6	4 Oct. 15	42 30.0	50.6	13 26 18.6	0 66.7	43 20.6	25 11.9
1175	Lalande 13377 .	8	3 Feb. 26	44 3.5	55.9	12 50 33.3	0 69.9	6 44 59.4	+12 49 23.4
1176	" . . .	7.8	5 Mar. 23	44 10.1	48.8	12 50 28.7	0 59.5	44 58.9	49 29.2
1177	271 Mayer . .	7.8	5 Mar. 19	45 13.3	50.7	18 10 8.8	1 2.6	6 46 4.0	+18 9 6.2
1178	39 Geminorum .	7	4 Mar. 22	45 29.2	57.9	26 20 53.1	1 11.7	6 46 27.1	+26 19 41.4
1179	" . . .		4 Mar. 23	(45)		26 20 56.9	1 11.8	(46)	19 45.1
1180	" . . .	6	4 Oct. 9	45 31.9	55.9	26 20 49.0	1 6.4	46 27.8	19 42.6
1181	" . . .	6	4 Oct. 15	45 31.5	55.7	26 20 51.7	1 6.0	46 27.2	19 45.7
1182*	40 Geminorum .	7	4 Mar. 22	46 8.1	57.8	26 11 32.6	1 12.5	6 47 5.9	+26 10 20.1
1183	" . . .		4 Mar. 23	(46)		26 11 35.7	1 12.5	(47)	10 23.2
1184	" . . .	6	4 Oct. 9	46 10.8	55.8	26 11 19.5	1 7.3	47 6.6	10 12.2
1185	Bessel, W. 1544,5	7.8	5 Mar. 21	46 53.7	54.2	27 9 29.9	1 7.8	6 47 47.9	+27 8 22.1
1186	Piazzi 294 . .	7.8	3 Feb. 26	47 24.4	57.2	16 13 22.6	1 15.7	6 48 21.6	+16 12 6.9
1187	274 Mayer . .	8	4 Oct. 13	47 37.9	54.6	23 43 21.0	1 9.8	6 48 32.5	+23 42 11.2
1188*	41 Geminorum .	7	3 Feb. 26	47 48.5	57.3	16 21 45.5	1 16.3	6 48 45.8	+16 20 29.2
1189	" . . .		4 Mar. 23	47 51.7	53.8	16 21 42.8	1 11.4	48 45.5	20 31.4
1190	" . . .	6	4 Mar. 26	6 47 52.0	+ 53.9	+16 21 43.2	— 1 11.4	6 48 45.9	+16 20 31.8

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1191	41 Geminorum .	6	4 Oct. 15	6 47 53.2	+ 51.7	+16 21 41.5	— 1 12.6	6 48 44.9	+16 20 28.9
1192	" . . .	7	5 Mar. 14	47 56.0	49.9	16 21 35.6	1 5.4	48 45.9	20 30.2
1193*	" . . .	6.7	5 Mar. 19	47 56.2	50.0	16 21 34.4	1 5.3	48 46.2	20 29.1
1194	" . . .	6	5 Mar. 23	47 55.7	50.0	16 21 35.4	1 5.4	48 45.7	20 30.0
1195	42 Geminorum ω^1		3 Mar. 6	49 12.4	60.9	24 30 34.9	1 21.0	6 50 13.3	+24 29 13.9
1196	" . . .	7	4 Mar. 22	49 15.7	57.1	24 30 25.3	1 16.1	50 12.8	29 9.2
1197	" . . .	6	5 Mar. 14	49 20.1	52.9	24 30 26.4	1 9.8	50 13.0	29 16.6
1198	" . . .	6	5 Mar. 21	49 19.8	53.0	24 30 21.6	1 9.9	50 12.8	29 11.7
1199	Lalande 13577 .	6.7	4 Oct. 15	49 54.4	52.4	18 2 49.1	1 14.6	6 50 46.8	+18 1 34.5
1200	" . . .	7	5 Mar. 21	50		18 2 45.3	1 9.7	50	1 35.6
1201	" . . .	6.7	5 Mar. 23	49 56.4	50.6	+18 2 43.7	1 8.4	50 47.0	1 35.3
1202	21 Canis Maj. ε		4 Mar. 26	(50)		—28 41 36.3	1 0.8	6(50)	—28 42 37.1
1203	" . . .	3.2	4 Oct. 9	50 10.6	35.5	28 40 53.8	1 29.6	50 46.1	42 23.4
1204	" . . .	2.3	4 Oct. 13	50 10.6	35.4	—28 40 54.0	1 29.2	50 46.0	42 23.2
1205	Anonyma . .	6.7	5 Mar. 19	50 10.8	50.2	+16 57 58.2	1 8.3	6 51 1.0	+16 56 49.9
1206*	43 Geminorum ζ		3 Mar. 6	51 15.0	59.2	20 52 24.4	1 22.6	6 52 14.2	+20 51 1.8
1207*	" . . .		3 Apr. 4	51 14.7	59.7	20 52 25.1	1 23.2	52 14.4	51 1.9
1208	" . . .		4 Mar. 22	51 18.3	55.5	20 52 16.8	1 17.5	52 13.8	50 59.3
1209	" . . .	5	5 Mar. 21	51 22.4	51.6	20 52 10.7	1 11.1	52 14.0	50 59.6
1210	44 Geminorum ω^2	7.8	3 Feb. 26	52 15.6	60.0	22 56 45.0	1 24.5	6 53 15.6	+22 55 20.5
1211	" . . .		4 Mar. 23	52 18.9	56.4	22 56 46.9	1 19.6	53 15.3	55 27.3
1212	" . . .	7	5 Mar. 14	52 24.0	52.3	22 56 40.3	1 13.1	53 16.3	55 27.2
1213*	" . . .	6.7	5 Mar. 19	52 23.2	52.4	22 56 43.0	1 13.1	53 15.6	55 29.9
1214	" . . .	6.7	5 Mar. 23	52 23.0	52.4	22 56 36.6	1 13.2	53 15.4	55 23.4
1215	Lalande 13724,5 .	7	4 Oct. 15	53 55.2	56.5	28 29 30.7	1 16.0	6 54 51.7	+28 28 14.7
1216	" . . .	7.8	5 Mar. 21	53 56.6	54.6	28 29 30.9	1 16.9	54 51.2	28 14.0
1217*	Piazzi 330 . .	7.8	3 Feb. 26	55 30.6	63.5	30 28 34.5	1 29.9	6 56 34.1	+30 27 4.6
1218	" . . .	8.9	5 Mar. 21	55 38.8	55.4	30 28 27.3	1 19.7	56 34.2	27 7.6
1219	Lalande 13794 .		3 Mar. 6	55 54.8	57.3	16 27 39.3	1 27.9	6 56 52.1	+16 26 11.4
1220	45 Geminorum o	6.7	3 Mar. 6	55 56.4	57.2	16 15 45.4	1 27.8	6 56 53.6	+16 14 17.6
1221	" . . .		4 Mar. 26	56 0.0	53.7	16 15 37.2	1 22.1	56 53.7	14 15.1
1222*	63 Aurigæ . .		4 Mar. 22	56 48.2	64.4	39 39 26.4	1 31.2	6 57 52.6	+39 37 55.2
1223	" . . .		4 Mar. 23	56 48.5	64.4	39 39 25.4	1 31.3	57 52.9	37 54.1
1224	" . . .	4.5	4 Oct. 9	56 50.4	62.3	39 39 7.9	1 16.2	57 52.7	37 51.7
1225	46 Geminorum τ		3 Feb. 26	57 20.4	63.5	30 35 4.9	1 33.8	6 58 23.9	+30 33 31.1
1226	" . . .	4.5	4 Oct 15	57 26.5	57.4	30 34 51.9	1 19.7	58 23.9	33 32.2
1227	" . . .	6	5 Mar. 21	57 28.4	55.4	30 34 57.0	1 21.9	58 23.8	33 35.1
1228	" . . .	3	5 Mar. 23	57 28.8	55.5	30 34 55.4	1 22.0	58 24.3	33 33.4
1229	47 Geminorum .		3 Mar. 6	57 56.3	62.0	27 11 50.2	1 34.0	6 58 58.3	+27 10 16.2
1230	" . . .	7	5 Mar. 14	58 4.2	53.9	27 11 40.8	1 21.2	58 58.1	10 19.6
1231	1036 Bradley . .	8	4 Oct. 13	59 0.1	51.5	15 40 18.6	1 27.1	6 59 51.6	+15 38 51.5
1232	" . . .	7.8	5 Mar. 19	59 1.4	49.6	15 40 10.3	1 18.7	59 51.0	38 51.6
1233	48 Geminorum m		4 Mar. 22	59 19.1	56.9	24 28 26.4	1 29.3	7 0 16.0	+24 26 57.1
1234	" . . .	6	4 Oct. 9	59 21.4	55.0	24 28 23.6	1 24.7	0 16.4	26 58.9
1235	" . . .		5 Mar. 14	(59)		24 28 24.0	1 22.2	(0)	27 1.8
1236	49 Geminorum .	7.8	3 Mar. 6	59 28.3	61.4	26 5 42.0	1 35.8	7 0 29.7	+26 4 6.2
1237	" . . .	7.8	4 Mar. 23	59 32.9	57.6	26 5 39.1	1 30.2	0 30.5	4 8.9
1238	" . . .	7	4 Mar. 26	6 59 33.0	57.6	26 5 39.1	1 30.3	0 30.6	4 8.8
1239*	50 Geminorum .	8	4 Oct. 13	7 0 31.1	51.5	15 31 31.4	1 28.6	7 1 22.6	+15 30 2.8
1240	51 Geminorum .		3 Feb. 26	0 55.8	57.2	16 30 38.9	1 34.8	7 1 53.0	+16 29 4.1
1241	" . . .	6.5	4 Oct. 15	1 0.6	51.8	16 30 36.7	1 29.2	1 52.4	29 7.5
1242	" . . .	6.7	5 Mar. 21	1 3.0	49.9	16 30 28.9	1 21.5	1 52.9	29 7.4
1243	" . . .	6	5 Mar. 23	1 2.7	49.9	16 30 30.4	1 21.5	1 52.6	29 8.9
1244	1048 Bradley . .	6.7	5 Mar. 19	1 20.4	53.0	25 3 48.3	1 24.7	7 2 13.4	+25 2 23.6
1245	52 Geminorum n		3 Mar. 6	1 26.0	61.0	25 14 48.5	1 38.3	7 2 27.0	+25 13 10.2
1246	" . . .	7.8	4 Mar. 23	1 29.7	57.2	25 14 42.5	1 32.4	2 26.9	13 10.1
1247	" . . .		4 Mar. 26	1 29.3	57.2	25 14 43.5	1 32.5	2 26.5	13 11.0
1248*	" . . .	6.7	5 Mar. 19	1 33.7	53.1	25 14 33.5	1 25.1	2 26.8	13 8.4
1249	" . . .	6.7	5 Mar. 23	(1)		25 14 34.5	1 25.2	(2)	13 9.3
1250	53 Geminorum .	6	4 Mar. 22	7 2 28.0	+ 58.5	+28 15 29.3	— 1 34.7	7 3 26.5	+28 13 54.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	m s	h m s	° ′ ″
1251	53 Geminorum .	6	4 Oct. 9	7 2 30.5	+ 56.6	+28 15 21.3	— 1 27.3	7 3 27.1	+28 13 54.0
1252	64 Aurigæ . .	5	5 Mar. 14	3 6.1	60.3	41 14 55.2	1 32.0	7 4 6.4	+41 13 23.2
1253	Lalande 14075 .	7.8	4 Oct. 13	3 42.1	55.0	24 54 3.6	1 29.8	7 4 37.1	+24 52 33.8
1254	" . . .	7.8	5 Mar. 19	3 43.6	52.9	24 53 57.2	1 27.6	4 36.5	52 29.6
1255	" . . .	8	5 Mar. 21	3 43.4	53.0	24 54 0.2	1 27.6	4 36.4	52 32.6
1256	" . . .	8	5 Mar. 23	3 44.2	53.0	24 54 0.0	1 27.7	4 37.2	52 32.3
1257	285 Mayer . .	7	4 Mar. 23	3 40.7	57.9	27 3 50.7	1 35.9	7 4 38.6	+27 2 14.8
1258	286 Mayer . .	7	4 Mar. 26	4 21.8	53.7	16 30 41.8	1 33.2	7 5 15.5	+16 29 8.6
1259	54 Geminorum λ		3 Feb. 26	5 38.4	57.3	16 55 0.2	1 41.5	7 6 35.7	+16 53 18.6
1260	" . . .		3 Mar. 6	5 38.2	57.4	16 55 1.7	1 41.6	6 35.6	53 20.1
1261	" . . .		4 Mar. 22	5 41.4	53.8	16 54 53.0	1 35.0	6 35.2	53 18.0
1262	55 Geminorum δ		3 Feb 26	7 10.6	59.5	22 21 54.4	1 45.1	7 8 10.1	+22 20 9.3
1263	" . . .		3 Mar. 6	7 9.7	59.6	22 22 3.1	1 45.3	8 9.3	20 17.8
1264	" . . .		3 April 4	7 9.8	60.1	22 21 59.9	1 46.1	8 9.9	20 13.8
1265*	" . . .		4 Mar. 22	7 13.4	55.9	22 21 55.4	1 38.8	8 9.3	20 16.6
1266	" . . .	3	4 Oct. 9	7 16.3	54.2	22 21 48.8	1 35.4	8 10.5	20 13.4
1267	" . . .	3	4 Oct. 12	7 15.9	54.0	22 21 47.8	1 35.2	8 9.9	20 12.6
1268	" . . .	3	4 Oct. 13	7 16.1	54.0	22 21 47.4	1 35.1	8 10.1	20 12.3
1269	" . . .	3	4 Oct. 15	7 15.9	53.9	22 21 46.4	1 35.0	8 9.8	20 11.4
1270	" . . .		5 Mar. 14	7 18.7	51.8	22 21 46.3	1 30.9	8 10.5	20 15.4
1271	" . . .	3	5 Mar. 19	7 18.3	51.9	22 21 46.1	1 31.0	8 10.2	20 15.1
1272	" . . .	3	5 Mar. 21	7 18.3	51.9	22 21 44.1	1 31.0	8 10.2	20 13.1
1273	" . . .	3	5 Mar. 23	7 18.0	52.0	22 21 48.3	1 31.1	8 10.0	20 17.2
1274	65 Aurigæ . .		4 Mar. 23	7 37.1	62.7	37 9 6.0	1 44.4	7 8 39.8	+37 7 21.6
1275	" . . .		4 Mar. 26	7 36.9	62.8	37 9 8.2	1 44.6	8 39.7	7 23.6
1276	66 Aurigæ . .	5.6	5 Mar. 23	9 15.5	60.3	41 4 8.7	1 39.9	7 10 15.8	+41 2 28.8
1277	57 Geminorum A		3 Feb. 26	10 15.5	60.8	25 27 4.6	1 50.3	7 11 16.3	+25 25 14.3
1278	" . . .		3 Mar. 6	10 15.3	60.9	25 27 8.9	1 50.6	11 16.2	25 18.3
1279	58 Geminorum .	6	4 Mar. 26	10 30.1	56.3	23 20 45.6	1 43.5	7 11 26.4	+23 19 2.1
1280	" . . .	7.8	5 Mar. 14	10 34.5	52.1	23 20 37.4	1 35.2	11 26.6	19 2.2
1281	59 Geminorum .	6.7	5 Mar. 23	11 11.7	54.1	28 2 16.7	1 37.7	7 12 5.8	+28 0 39.0
1282	60 Geminorum ι		4 Mar. 23	12 19.4	58.3	28 12 45.3	1 47.4	7 13 17.7	+28 10 57.9
1283*	" . . .	4.5	5 Mar. 14	12 23.3	54.0	28 12 37.8	1 38.9	13 17.3	10 58.9
1284	" . . .	4.5	5 Mar. 19	12 23.5	54.1	28 12 32.5	1 39.1	13 17.6	10 53.4
1285	" . . .	5	5 Mar. 23	12 23.8	54.2	28 12 35.7	1 39.2	13 18.0	10 56.5
1286	1 Canis Minoris	6	4 Mar. 22	12 59.5	51.9	12 4 39.3	1 42.8	7 13 51.4	+12 2 56.5
1287	61 Geminorum τ		3 Feb. 26	14 9.5	58.7	20 40 31.2	1 54.2	7 15 8.2	+20 38 37.0
1288	" . . .		4 Mar. 26	14 13.1	55.2	20 40 26.5	1 47.4	15 8.3	38 39.1
1289	" . . .	6	4 Oct. 9	14 14.7	53.5	20 40 21.7	1 44.8	15 8.2	38 36.9
1290	" . . .	6	4 Oct. 12	14 14.8	53.4	20 40 26.1	1 44.5	15 8.2	38 31.6
1291	63 Geminorum p	6	5 Mar. 14	14 59.4	51.5	21 52 11.6	1 40.0	7 15 50.9	+21 50 31.6
1292*	Lalande 14453 .	6	4 Oct. 13	15 11.0	50.3	12 22 12.4	1 48.6	7 16 1.3	+12 20 23.8
1293	" . . .	7	5 Mar. 19	15 12.2	48.3	+12 22 11.8	1 37.1	16 0.5	20 34.7
1294*	31 Canis Maj. η		4 Mar. 23	15 35.0	36.8	—28 53 47.9	1 34.2	7 16 11.8	—28 55 22.1
1295	Flamsteed, B. 1043	7.8	5 Mar. 23	15 20.0	54.0	+27 58 21.7	1 42.6	7 16 14.0	+27 56 39.1
1296	65 Geminorum b²		3 Feb. 26	16 20.0	62.0	28 20 52.1	1 59.3	7 17 22.0	+28 18 52.8
1297*	" . . .	5.6	4 Mar. 22	16 22.7	58.2	28 20 48.3	1 52.6	17 20.9	18 55.7
1298	" . . .	6	4 Oct. 12	16 24.9	56.4	28 20 43.4	1 44.4	17 21.3	18 59.0
1299	Piazzi 114 . .	8	3 Feb. 26	17 11.9	62.0	28 20 56.6	2 0.4	7 18 13.9	+28 18 56.2
1300	Lalande 14555 .	7	5 Mar. 14	17 49.0	46.4	7 0 28.2	1 38.5	7 18 35.4	+ 6 58 49.7
1301	6 Canis Minoris o	6	5 Mar. 19	17 50.4	48.3	12 26 7.7	1 40.2	7 18 38.7	+12 24 27.5
1302	" . . .	6	5 Mar. 23	17 51.8	48.3	12 26 8.5	1 40.3	18 40.1	24 28.2
1303	Lalande 14620 .	6	4 Oct. 13	19 23.7	52.2	17 31 48.1	1 51.9	7 20 15.9	+17 29 56.2
1304	66 Geminorum α		3 Feb. 26	20 45.0	63.8	32 20 53.8	2 6.3	7 21 48.8	+32 18 47.5
1305	" . . .		3 Mar. 6	20 45.5	63.9	32 20 57.9	2 6.8	21 49.4	18 51.1
1306	" . . .		3 April 8	20 45.1	64.5	32 20 51.5	2 8.4	21 49.6	18 43.1
1307	" . . .		3 April 9	20 44.7	64.5	32 20 57.0	2 8.4	21 49.2	18 48.6
1308	" . . .		3 April 14	20 45.5	64.6	32 20 53.7	2 8.4	21 50.1	18 45.3
1309	" . . .		3 April 26	20 44.3	64.8	32 20 59.5	2 8.5	21 49.1	18 51.0
1310	" . . .		3 April 29	7 20 44.1	+ 64.9	+32 21 1.1	— 2 8.5	7 21 49.0	+32 18 52.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1311	66 Geminorum α		3 April 30	7 20 44.2	+ 64.9	+32 21 0.9	− 2 8.5	7 21 49.1	+32 18 52.4
1312	"		3 May 3	20 44.1	64.9	32 20 53.2	2 8.4	21 49.0	18 44.8
1313	"	2	3 May 9	20 44.0	65.0	32 20 56.3	2 8.2	21 49.0	18 48.1
1314	"		3 Sept. 25	20 45.9	63.0	32 20 47.3	1 58.3	21 48.9	18 49.0
1315	"		4 Mar. 23	20 49.0	59.9	32 20 53.4	1 59.6	21 48.9	18 53.8
1316	"		4 Mar. 26	20 49.4	60.0	32 20 51.2	1 59.7	21 49.4	18 51.5
1317*	"		4 Oct. 2	20 50.1	58.5	32 20 46.9	1 49.2	21 48.6	18 57.7
1318	"	1.2	4 Oct. 9	20 51.1	58.2	32 20 35.1	1 48.7	21 49.3	18 46.4
1319	"	1.2	4 Oct. 12	20 51.2	58.1	32 20 38.9	1 48.5	21 49.3	18 50.4
1320	Lalande 14688	7	5 Mar. 19	21 6.6	54.3	29 8 11.4	1 49.0	7 22 0.9	+29 6 22.4
1321	68 Geminorum κ	6	5 Mar. 14	21 21.6	49.4	16 16 29.8	1 45.6	7 22 11.0	+16 14 44.2
1322	Piazzi 136	7.8	5 Mar. 19	21 59.6	54.2	29 4 53.4	1 50.7	7 22 53.8	+29 3 2.7
1323	69 Geminorum υ		3 Feb. 26	22 33.5	61.4	27 21 45.4	2 7.4	7 23 34.9	+27 19 38.0
1324	"		3 Mar. 6	22 33.6	61.5	27 21 51.8	2 7.8	23 35.1	19 44.0
1325	"	6.5	4 Oct. 13	22 38.9	55.9	27 21 32.8	1 52.4	23 34.8	19 40.4
1326	9 Canis Min. δ³		4 Mar. 26	22 56.9	49.4	3 49 33.0	1 52.7	7 23 46.3	+ 3 47 40.3
1327	"	6	5 Mar. 23	23 0.8	45.8	3 49 26.0	1 43.5	23 46.6	47 42.5
1328*	Piazzi 143	6.7	5 Mar. 23	(23)		3 43 46.7	1 43.5	(24)	+ 3 42 3.2
1329	Piazzi 144	7	5 Mar. 19	24 28.3	51.0	20 37 34.9	1 50.8	7 25 19.3	+20 35 44.1
1330	70 Geminorum	6	4 Oct. 9	24 24.2	59.7	35 30 48.6	1 56.0	7 25 23.9	+35 28 52.6
1331	"	6.7	4 Oct. 12	24 23.9	59.6	35 30 53.4	1 55.7	25 23.5	28 57.7
1332	302 Mayer	7	4 Oct. 13	24 58.1	52.8	19 23 25.9	1 58.0	7 25 50.9	+19 21 27.9
1333	71 Geminorum ο		3 Mar. 6	25 0.0	65.2	35 4 1.7	2 13.4	7 26 5.2	+35 1 48.3
1334	Piazzi 153	7.8	5 Mar. 14	25 14.0	52.4	24 49 41.5	1 52.9	7 26 6.4	+24 47 48.6
1335	1101 Bradley	7	5 Mar. 23	26 9.7	55.6	32 29 15.0	1 56.8	27 5.3	+32 27 18.2
1336	Piazzi 161	7	4 Mar. 26	26 8.7	56.5	24 41 52.5	2 3.8	7 27 5.2	+24 39 48.7
1337	"	7.8	5 Mar. 14	26 13.2	52.3	24 41 49.4	1 54.0	27 5.5	39 55.4
1338	74 Geminorum f	6	5 Mar. 19	27 5.0	50.1	18 8 53.8	1 53.0	7 27 55.1	+18 7 0.8
1339	Procyon		3 Feb. 26	27 57.4	52.8	5 45 59.9	2 9.0	7 28 50.2	+ 5 43 50.9
1340	"		3 April 4	27 57.1	53.3	5 45 58.5	2 8.6	28 50.4	43 49.9
1341*	"		3 April 5	27 57.0	53.3	5 45 57.2	2 8.6	28 50.3	43 48.6
1342	"		3 April 9	27 56.8	53.4	5 45 59.8	2 8.8	28 50.2	43 51.0
1343*	"		3 April 14	27 56.3	53.5	5 45 57.9	2 8.8	28 49.8	43 49.1
1344	"		3 April 19	27 57.0	53.6	5 45 58.9	2 9.0	28 50.6	43 49.9
1345	"		3 April 26	27 56.5	53.6	5 46 0.1	2 9.3	28 50.1	43 50.8
1346	"		3 April 28	27 56.4	53.7	5 45 58.1	2 9.3	28 50.1	43 48.8
1347	"		3 April 29	27 56.7	53.7	5 46 2.6	2 9.3	28 50.4	43 53.3
1348	"		3 April 30	27 56.4	53.7	5 46 2.6	2 9.4	28 50.1	43 53.2
1349	"		3 May 3	27 56.5	53.7	5 46 1.8	2 9.5	28 50.2	43 53.2
1350	"	1	3 May 9	27 56.2	53.8	5 45 59.8	2 9.7	28 50.0	43 50.1
1351	"		4 Mar. 22	28 1.0	49.6	5 45 52.5	1 59.7	28 50.6	43 52.8
1352	"		4 Mar. 23	28 0.3	49.6	5 45 52.8	1 59.7	28 49.9	43 53.1
1353	"		4 Mar. 26	(28)		5 45 54.6	1 59.7	(28)	43 54.9
1354	"		4 Oct. 2	28 1.7	48.5	5 45 56.3	2 7.3	28 50.2	43 49.0
1355	"	1	4 Oct. 9	28 2.0	48.3	5 46 2.6	2 6.9	28 50.3	43 55.7
1356	"	1	4 Oct. 12	28 1.9	48.2	5 46 0.3	2 6.6	28 50.1	43 53.7
1357	"	1	4 Oct. 13	28 2.2	48.1	5 45 57.1	2 6.5	28 50.3	43 50.6
1358	"	1	5 April 5	28 3.7	46.3	5 45 43.4	1 50.2	28 50.0	43 53.2
1359	"	1	5 April 26	28 3.9	46.6	5 45 41.5	1 50.7	28 50.5	43 50.8
1360	Lalande 14921	7	5 Mar. 14	28 7.2	51.9	23 30 5.0	1 55.8	7 28 59.1	+23 28 9.2
1361	75 Geminorum σ		3 Mar. 6	29 45.3	62.2	29 23 37.1	2 17.9	7 30 47.5	+29 21 19.2
1362	309 Mayer		5 Mar. 14	30 35.8	51.6	22 53 29.3	1 58.4	7 31 27.4	+22 51 30.9
1363	76 Geminorum c		5 Mar. 19	31 1.0	52.9	26 16 53.2	2 0.2	7 31 53.9	+26 14 53.0
1364	"	6	5 Mar. 23	31 1.0	53.0	26 16 52.8	2 0.3	31 54.0	14 52.5
1365*	77 Geminorum κ		3 Mar. 6	31 21.0	60.2	24 54 12.9	2 18.7	7 32 21.2	+24 51 54.2
1366	"		3 April 8	31 20.0	60.8	24 54 11.9	2 20.0	32 20.8	51 51.9
1367*	"	4.5	4 Oct. 9	31 26.3	54.9	24 53 59.7	2 4.2	32 21.2	51 55.5
1368	"	4.5	4 Oct. 12	31 26.2	54.8	24 54 0.0	2 4.0	32 21.0	51 56.0
1369	78 Geminorum β		3 Feb. 26	32 2.6	61.7	28 32 6.5	2 20.4	7 33 4.3	+28 29 46.1
1370	"		3 April 4	7 32 2.2	+ 62.3	+28 32 10.0	− 2 22.1	7 33 4.5	+28 29 47.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1371	78 Geminorum β		3 April 8	7 32 1.7	+ 62.3	+28 32 9.1	− 2 22.2	7 33 4.0	+28 29 46.9
1372*	" . . .		3 April 9	32 1.7	62.4	28 32 13.0	2 22.3	33 4.1	29 50.7
1373	" . . .		3 April 14	32 2.2	62.5	28 32 9.7	2 22.3	33 4.7	29 47.4
1374	" . . .		3 April 16	32 2.0	62.5	28 32 9.7	2 22.3	33 4.5	29 47.4
1375	" . . .		3 April 19	32 1.9	62.5	28 32 14.9	2 22.4	33 4.4	29 52.5
1376	" . . .		3 April 26	32 2.0	62.6	28 32 12.0	2 22.5	33 4.6	29 49.5
1377	" . . .		3 April 28	32 1.9	62.7	28 32 8.5	2 22.5	33 4.6	29 46.0
1378	" . . .		3 April 29	32 1.7	62.6	28 32 12.5	2 22.5	33 4.3	29 50.0
1379	" . . .		3 April 30	32 1.6	62.7	28 32 14.4	2 22.5	33 4.3	29 51.9
1380	" . . .		3 May 3	32 1.6	62.7	28 32 9.7	2 22.5	33 4.3	29 47.2
1381	" . . .		3 May 9	32 1.6	62.8	28 32 10.8	2 22.4	33 4.4	29 48.4
1382	" . . .		4 Mar. 22	32 6.1	57.9	28 32 1.2	2 12.3	33 4.0	29 48.9
1383	" . . .		4 Oct. 2	32 7.6	56.6	28 31 51.3	2 4.4	33 4.2	29 46.9
1384	" . . .	2	5 Mar. 19	32 11.0	53.8	28 31 55.6	2 2.2	33 4.8	29 53.4
1385	" . . .	2	5 April 5	32 9.9	54.1	28 31 52.7	2 3.0	33 4.0	29 49.7
1386	" . . .	2	5 April 11	32 9.5	54.2	28 31 52.9	2 3.1	33 3.7	29 49.8
1387	79 Geminorum .	7	5 Mar. 14	32 33.5	50.8	20 49 4.5	2 0.1	7 33 24.3	+20 47 4.4
1388	81 Geminorum g		3 April 4	33 34.2	58.2	19 1 29.7	2 20.8	7 34 32.4	+18 59 8.9
1389	" . . .		4 Oct. 12	33 38.7	52.6	19 1 20.1	2 8.7	34 31.3	59 11.4
1390	" . . .	6	4 Oct. 13	33 39.5	52.6	19 1 17.6	2 8.6	34 32.1	59 9.0
1391	80 Geminorum π	5	5 Mar. 23	33 38.9	56.0	33 55 42.5	2 5.9	7 34 34.9	+33 53 36.6
1392	82 Geminorum .		3 Mar. 6	35 35.2	59.6	23 39 52.4	2 23.9	7 36 34.8	+23 37 28.5
1393	" . . .	6	5 Mar. 19	35 43.1	51.8	23 39 32.5	2 5.4	36 34.9	37 27.1
1394*	" . . .	7.8	5 Mar. 23	35 43.1	51.9	23 39 33.6	2 5.6	36 35.0	37 28.0
1395	Lalande 15218 .		5 Mar. 19	37 44.4	52.2	24 41 22.7	2 7.3	7 38 36.6	+24 39 15.4
1396	25 Lyncis . .	6	5 April 5	38 49.4	63.7	47 55 36.7	2 17.1	7 39 53.1	+47 53 19.6
1397	26 Lyncis . .	5	4 Oct. 13	38 59.8	66.5	48 6 2.2	2 4.9	7 40 6.3	+48 3 57.3
1398*	" . . .	6	5 Mar. 23	39 2.4	63.5	48 6 18.3	2 16.6	40 5.9	4 1.7
1399	83 Geminorum φ		3 Feb. 26	40 13.5	61.0	27 18 41.5	2 30.5	7 41 14.5	+27 16 11.0
1400	" . . .		3 Mar. 6	40 13.0	61.0	27 18 46.7	2 31.0	41 14.0	16 15.7
1401	" . . .		3 April 4	40 12.8	61.5	27 18 47.2	2 32.4	41 14.3	16 14.8
1402*	" . . .		3 April 5	40 12.9	61.5	27 18 44.2	2 32.5	41 14.4	16 11.7
1403	13 Canis Min. ζ		4 Mar. 22	40 30.9	48.3	2 18 15.8	2 14.1	7 41 19.2	+ 2 16 1.7
1404	Lalande 15325 .	8.9	3 Feb. 26	40 28.1	60.8	27 7 12.7	2 31.1	7 41 28.9	+27 4 41.6
1405	" . . .	9	3 Mar. 6	40 37.9	60.9	27 7 15.7	2 31.2	41 28.8	4 44.5
1406	85 Geminorum l	7	3 Mar. 6	43 0.6	58.1	20 26 33.6	2 32.7	7 43 58.7	+20 24 0.9
1407*	" . . .		3 April 4	43 0.2	58.6	20 26 33.4	2 33.6	43 58.8	23 59.8
1408*	" . . .	7	3 April 5	43 0.3	58.6	20 26 32.5	2 33.7	43 58.9	23 58.8
1409	" . . .	6	4 Mar. 22	43 3.7	54.4	20 26 27.3	2 23.0	43 58.1	24 4.3
1410	1 Cancri . . .	7	3 Feb. 26	44 41.1	56.5	16 21 17.3	2 33.6	7 45 37.6	+16 18 43.7
1411	" . . .	6	3 Mar. 6	44 39.7	56.5	16 21 23.5	2 33.6	45 36.1	18 49.9
1412	" . . .		4 Mar. 22	44 44.3	53.0	16 21 14.3	2 23.6	45 37.3	18 50.7
1413	Lalande 15515–7	7	5 Mar. 23	45 46.8	56.9	36 39 4.7	2 20.5	7 46 43.7	+36 36 44.2
1414	14 Canis Minoris		4 Mar. 22	47 9.4	48.4	2 47 14.2	2 22.2	7 47 57.8	+ 2 44 52.0
1415	Lalande 15565 .	7	5 Mar. 19	47 13.6	53.9	29 51 14.5	2 19.6	7 48 7.5	+29 48 54.9
1416	2 Cancri ω^1		3 Feb. 26	47 48.0	60.2	25 58 18.8	2 40.0	7 48 48.2	+25 55 38.8
1417	" . . .		3 Mar. 6	47 48.4	60.2	25 58 16.3	2 40.3	48 48.6	55 36.0
1418	" . . .		3 April 4	47 47.8	60.7	25 58 20.2	2 41.7	48 48.5	55 38.5
1419*	" . . .		3 April 5	47 47.9	60.7	25 58 20.2	2 41.8	48 48.6	55 38.4
1420*	" . . .		3 April 8	47 47.5	60.8	25 58 21.3	2 41.9	48 48.3	55 39.4
1421	" . . .		3 April 9	47 47.2	60.8	25 58 21.0	2 41.9	48 48.0	55 39.1
1422	3 Cancri . . .		3 April 4	48 21.9	57.7	17 53 19.0	2 39.7	7 49 19.6	+17 50 39.3
1423	4 Cancri ω^2	7	3 Mar. 6	48 38.3	60.1	25 40 21.4	2 41.3	7 49 38.4	+25 37 40.1
1424	5 Cancri . . .	6	5 Mar. 19	(49)		17 1 55.5	2 17.8	7(50)	+16 59 37.7
1425	" . . .	6	5 Mar. 23	49 16.0	49.4	17 1 59.7	2 17.9	50 5.4	59 41.8
1426	6 Cancri . . .		3 Feb. 26	50 11.7	61.1	28 23 15.1	2 33.5	7 51 12.8	+28 20 41.6
1427	" . . .		3 Mar. 6	50 11.6	61.2	28 23 20.8	2 44.0	51 12.8	20 36.8
1428	" . . .		3 April 5	50 11.4	61.7	28 23 18.6	2 45.7	51 13.1	20 32.9
1429	" . . .		3 April 8	50 10.6	61.7	28 23 18.8	2 45.8	51 12.3	20 33.0
1430	" . . .		3 April 9	7 50 10.7	+ 61.7	+28 23 20.0	− 2 45.8	7 51 12.4	+28 20 34.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1431	7 Cancri . . .	7	4 Mar. 22	7 51 5.8	+ 55.1	+22 39 45.5	— 2 33.3	7 52 0.9	+22 37 12.2
1432	" . . .	6.7	5 Mar. 19	51 10.0	51.2	22 39 32.5	2 21.7	52 1.2	37 10.8
1433	" . . .	7	5 Mar. 23	51 9.9	51.2	22 39 31.4	2 21.8	52 1.1	37 9.6
1434	8 Cancri . . .	6	3 Mar. 6	53 0.4	55.4	13 43 20.2	2 43.6	7 53 55.8	+13 40 36.6
1435*	" . . .		3 April 4	52 59.8	55.8	13 43 21.6	2 44.1	53 55.6	40 37.5
1436	" . . .		3 April 5	52 59.2	55.9	13 43 17.7	2 44.1	53 55.1	40 33.6
1437	" . . .		3 April 8	52 58.8	55.9	13 43 17.5	2 44.0	53 54.7	40 33.5
1438	320 Mayer . .	7	5 Mar. 23	53 33.8	48.4	14 6 7.1	2 21.7	7 54 22.2	+14 3 45.4
1439*	9 Cancri μ^1		3 Feb. 26	53 26.6	58.9	23 14 29.1	2 46.4	7 54 25.5	+23 11 42.7
1440	" . . .	7	4 Mar. 22	53 30.7	55.2	23 14 20.7	2 36.3	54 25.9	11 44.4
1441	" . . .	5.6	5 Mar. 19	53 34.9	51.3	23 14 7.3	2 24.5	54 26.2	11 42.8
1442	10 Cancri μ^2		3 Feb. 26	54 59.9	58.5	22 11 50.7	2 48.1	7 55 58.4	+22 9 2.6
1443	" . . .		3 April 4	54 59.7	59.0	22 11 52.7	2 49.6	55 58.7	9 3.1
1444	" . . .		3 April 5	54 59.2	59.0	22 11 50.8	2 49.5	55 58.2	9 1.3
1445*	" . . .		3 April 8	54 58.9	59.0	22 11 54.0	2 49.7	55 57.9	9 4.3
1446	" . . .	6	4 Mar. 22	55		22 11 46.7	2 37.8	55	9 8.9
1447	11 Cancri . .	6	5 Mar. 19	55 41.4	53.0	28 5 29.2	2 28.3	7 56 34.4	+28 3 0.9
1448	" . . .	7	5 Mar. 23	55 41.2	53.0	28 5 34.9	2 28.5	56 34.2	3 6.4
1449	12 Cancri . .		3 April 4	56 35.0	56.0	14 15 28.7	2 48.8	7 57 31.0	+14 12 39.9
1450*	" . . .		3 April 8	(56)		14 15 34.0	2 48.9	(57)	12 45.1
1451*	" . . .		4 Mar. 22	56 38.8	52.0	14 15 22.4	2 37.1	57 30.8	12 45.3
1452	13 Cancri ψ^1		3 Mar. 6	57 5.9	60.2	26 28 7.5	2 52.1	7 58 6.1	+26 25 15.4
1453*	" . . .		3 April 5	57 6.1	60.6	26 28 7.8	2 53.7	58 6.7	25 14.1
1454	14 Cancri ψ^2		3 Feb. 26	57 23.2	60.0	26 9 3.2	2 51.9	7 58 23.2	+26 6 11.3
1455	324 Mayer . .	7.8	5 Mar. 19	57 46.1	49.4	17 38 1.3	2 47.2	7 58 35.5	+17 35 14.1
1456	Flamsteed, B.1146	6.7	5 Mar. 23	58 55.4	48.6	15 15 5.2	2 27.9	7 59 44.0	+15 12 37.3
1457	" . . .	6	5 April 5	58 55.0	48.8	15 15 4.0	2 28.2	59 43.8	12 35.8
1458	Bessel, W. 44 .	8	4 Mar. 22	59 33.3	53.0	17 10 4.5	2 41.4	8 0 26.3	+17 7 23.1
1459	15 Cancri . .		3 April 4	59 41.9	62.2	30 17 35.8	2 58.2	8 0 44.1	+30 14 37.6
1460	" . . .		3 April 8	59 41.3	62.2	30 17 37.9	2 58.4	0 43.5	14 39.5
1461*	" . . .		3 April 9	59 41.4	62.3	30 17 34.4	2 58.5	0 43.7	14 35.9
1462	" . . .	5	5 April 10	59 49.1	55.0	30 17 17.8	2 34.5	0 44.1	14 43.3
1463	16 Cancri ζ		3 Feb. 26	59 46.9	56.9	18 17 15.4	2 53.1	8 0 43.8	+18 14 22.3
1464	" . . .		3 Mar. 6	59 46.4	57.0	18 17 15.5	2 53.2	0 43.4	14 22.3
1465	" . . .		3 April 5	7 59 45.4	57.4	18 17 15.1	2 54.2	0 42.8	14 20.9
1466	Bessel, W. 71,2 .	7	4 Mar. 22	8 0 43.5	52.9	17 8 55.6	2 42.8	8 1 36.4	+17 6 12.8
1467	Lalande 16053 .	7	5 Mar. 19	0 57.8	51.3	23 46 16.4	2 32.6	8 1 49.1	+23 43 43.8
1468	" . . .	6.7	5 April 5	0 57.7	51.6	23 46 14.1	2 33.4	1 49.3	43 40.7
1469	329 Mayer . .	8	3 Feb. 26	1 46.7	56.9	18 19 1.0	2 55.5	8 2 43.6	+18 16 5.5
1470	" . . .	7	3 April 4	1 45.9	57.3	18 18 58.2	2 56.6	2 43.2	16 1.6
1471	" . . .	7	5 Mar. 23	1 52.9	49.6	18 18 38.6	2 32.0	2 42.5	16 6.6
1472	Lalande 16145,6	7.8	4 Mar. 22	3 51.9	60.3	36 22 53.7	2 52.4	8 4 52.2	+36 20 1.3
1473	17 Cancri β		3 Feb. 26	4 45.8	53.9	9 50 26.0	2 57.4	8 5 39.7	+ 9 47 28.6
1474	" . . .		3 Mar. 6	4 44.9	53.9	9 50 27.0	2 57.2	5 38.8	47 29.8
1475	" . . .		3 April 4	4 45.3	54.3	9 50 25.3	2 57.5	5 39.6	47 27.8
1476	" . . .		3 April 5	4 44.5	54.3	9 50 25.0	2 57.5	5 38.8	47 27.5
1477	" . . .		3 April 8	4 45.1	54.4	9 50 27.2	2 57.6	5 39.5	47 29.6
1478	" . . .		3 April 9	4 45.7	54.4	9 50 23.7	2 57.6	5 40.1	47 26.1
1479	" . . .		3 April 14	4 44.8	54.5	9 50 25.2	2 57.7	5 39.3	47 27.5
1480	" . . .		3 April 16	4 44.8	54.5	9 50 25.7	2 57.8	5 39.3	47 27.9
1481	" . . .		3 April 26	4 44.0	54.6	9 50 26.0	2 58.2	5 38.6	47 27.8
1482	" . . .	4.3	5 Mar. 23	4 52.0	46.9	9 50 0.6	2 32.5	5 38.9	47 28.1
1483	" . . .	4.3	5 April 11	4 52.2	47.2	9 49 58.9	2 32.8	5 39.4	47 26.1
1484	331 Mayer . .	7	3 April 4	5 47.0	54.2	9 31 22.4	2 58.6	8 6 41.2	+ 9 28 23.8
1485	" . . .		5 Mar. 23	5 53.9	46.8	9 31 2.2	2 33.6	6 40.7	28 28.6
1486	Lalande 16215,8	7	5 April 5	5 54.8	52.6	26 59 32.1	2 39.8	8 6 47.4	+26 56 52.3
1487*	Piazzi 34 . . .	9.10	3 April 2	5 54.1	54.2	9 49 22.4	2 58.8	8 6 48.3	+ 9 46 23.6
1488	" . . .	8.9	3 April 5	5 54.4	54.3	9 49 22.7	2 58.8	6 48.7	46 23.9
1489	Lalande 16237,8	7	5 Mar. 19	6 21.3	51.5	24 49 52.8	2 38.6	8 7 12.8	+24 47 14.2
1490*	Piazzi 36 . . .		3 April 2	8 6 38.0	+ 54.2	+ 9 48 35.4	— 2 59.8	8 7 32.2	+ 9 45 35.6

No.	Name		Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
					h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1491	Piazzi 36 . . .		8	3 April 5	8 6 38.2	+54.3	+ 9 48 37.7	— 2 59.8	8 7 32.5	+ 9 45 37.9
1492	18 Cancri	χ		3 April 8	6 52.3	61.0	27 54 28.4	3 6.4	8 7 53.3	+27 51 22.0
1493*	Bessel, W.238			3 Mar. 6	7 7.7	59.0	24 27		8 8 6.7	24 25
1494	19 Cancri	λ		3 Mar. 6	7 38.0	59.2	24 41 33.7	3 4.5	8 8 37.2	+24 38 29.2
1495	" . . .			3 April 4	7 37.5	59.6	24 41 33.6	3 6.0	8 37.1	38 27.6
1496*	" . . .			3 April 8	(7)		24 41 34.4	3 6.2	(8)	38 28.2
1497	" . . .		6	5 Mar. 19	7 45.9	51.4	24 41 5.9	2 40.1	8 37.3	38 25.8
1498	Piazzi 42 . . .		6	4 Mar. 22	7 45.3	54.2	21 25 1.3	2 52.1	8 8 39.5	+21 22 9.2
1499	31 Lyncis . .			3 April 9	7 57.1	68.9	43 52 14.5	3 13.2	8 9 6.0	+43 49 1.3
1500	" . . .		5	5 April 5	(8)		43 51 50.9	2 47.8	(9)	49 3.1
1501	" . . .		5	5 April 10	8 5.5	59.8	43 51 53.2	2 48.0	9 5.3	49 5.2
1502	" . . .		5	5 April 11	8 5.2	59.8	43 51 53.5	2 48.1	9 5.0	49 5.4
1503	Piazzi 48 . . .		8	5 April 5	10 38.4	47.5	11 19 53.6	2 39.4	8 11 25.9	+11 17 14.2
1504	20 Cancri	d		3 Mar. 6	10 56.5	57.0	19 0 59.4	3 7.0	8 11 53.5	+18 57 52.4
1505	" . . .			3 April 2	10 56.6	57.3	19 0 55.5	3 8.0	11 53.9	57 47.5
1506*	" . . .			3 April 4	10 56.0	57.4	19 0 56.4	3 8.1	11 53.4	57 48.3
1507	" . . .			3 April 5	10 56.0	57.4	19 0 56.1	3 8.0	11 53.4	57 48.1
1508	" . . .			3 April 8	10 55.9	57.4	19 0 57.5	3 8.2	11 53.3	57 49.3
1509	" . . .		7	4 Mar. 22	11 0.0	53.3	19 0 45.7	2 55.0	11 53.3	57 50.7
1510	Piazzi 51 . . .		9	3 April 2	11 0.0	57.2	18 48	3 8.0	8 11 57.2	+18 46
1511	21 Cancri . .			3 April 5	12 4.2	54.7	11 19 4.3	3 6.9	8 12 58.9	+11 15 57.4
1512	" . . .			3 April 8	12 3.9	54.7	11 19 6.3	3 7.0	12 58.6	15 59.3
1513	" . . .		6	5 April 5	12 10.5	47.5	11 19		12 58.0	15
1514	22 Cancri	ϕ^1		3 Mar. 6	13 16.1	60.6	28 35 48.8	3 12.1	8 14 16.7	+28 32 36.7
1515	" . . .			3 April 4	13 15.4	61.0	28 35 43.8	3 14.0	14 16.4	32 29.8
1516	" . . .			3 April 5	13 15.4	61.0	28 35 43.2	3 14.4	14 16.4	32 28.8
1517	25 Cancri	d^2	7	5 April 10	13 40.3	49.5	17 44 27.6	2 44.8	8 14 29.8	+17 41 42.8
1518	23 Cancri	ϕ^2		3 April 4	13 39.6	60.6	27 37 51.7	3 14.2	8 14 40.2	+27 34 37.5
1519	" . . .			3 April 8	13 38.7	60.6	27 37 55.4	3 14.4	14 39.3	34 41.0
1520	" . . .			4 Mar. 22	13 43.7	56.3	27 37 41.1	3 0.7	14 40.0	34 40.0
1521	24 Cancri	υ^1		5 Mar. 19	13 53.5	51.5	25 13 35.0	2 46.6	8 14 45.0	+25 10 48.4
1522	Lalande 16581,3		10.11	3 April 2	15 30.1	57.1	18 46 39.5	3 13.4	8 16 27.2	+18 43 26.1
1523	28 Cancri	υ^2		3 April 4	15 43.9	59.4	24 51 9.0	3 15.8	8 16 43.3	+24 47 53.2
1524	" . . .		7	5 April 10	15 51.8	51.6	24 50 44.5	2 49.6	16 43.4	47 54.9
1525	29 Geminorum .			3 April 8	16 30.7	55.9	14 54 59.3	3 13.5	8 17 26.6	+14 51 45.8
1526	341 Mayer . .			3 April 4	16 45.1	59.4	25 3 14.3	3 17.0	8 17 44.5	+24 59 57.3
1527	340 Mayer . .		7	5 Mar. 19	16 55.8	51.9	26 53 48.1	2 50.2	8 17 47.7	+26 50 57.9
1528	30 Cancri	υ^3		3 April 5	18 40.0	59.3	24 48 0.8	3 19.2	8 19 39.3	+24 44 41.6
1529	" . . .			3 April 8	18 40.1	59.3	24 47 59.3	3 19.4	19 39.4	44 39.9
1530	31 Cancri	θ		3 Mar. 6	19 13.8	56.7	18 48 53.9	3 13.3	8 20 10.5	+18 45 40.6
1531	" . . .			3 April 4	19 13.9	57.1	18 48 54.6	3 17.8	20 11.0	45 36.8
1532	" . . .			3 April 16	19 13.0	57.3	18 48 56.3	3 18.3	20 10.3	45 38.0
1533	344 Mayer . .		6	5 April 9	19 20.9	49.9	19 41 53.8	2 51.4	8 20 10.8	+19 39 2.4
1534	32 Lyncis . .			3 April 9	19 25.1	64.6	37 9 37.6	3 24.6	8 20 29.7	+37 6 13.0
1535	32 Cancri	υ^4		3 April 5	20 9.9	59.2	24 48 34.7	3 21.0	8 21 9.1	+24 45 13.7
1536	" . . .			3 April 8	20 9.5	59.3	24 48 36.6	3 21.2	21 8.8	45 15.4
1537	34 Cancri . .		7	5 April 10	20 58.8	47.2	10 46 49.4	2 50.0	8 21 46.0	+10 43 59.4
1538	33 Lyncis . .			3 April 9	20 45.8	64.5	37 9 6.6	3 26.2	8 21 50.3	+37 5 40.4
1539	" . . .		6	5 Mar. 19	20 55.0	55.6	37 8 37.4	2 57.3	21 50.6	5 40.1
1540	" . . .		6	5 April 11	20 54.3	56.0	37 8 40.3	2 59.0	21 50.3	5 41.3
1541	347 Mayer . .		7	5 April 5	21 51.3	48.1	13 58 44.3	2 51.9	8 22 39.4	+13 55 52.4
1542	" . . .		6	5 April 9	21 50.1	48.1	13 58 42.1	2 51.9	22 38.2	55 50.2
1543	" . . .		7	5 April 10	21		13 58 47.5	2 52.0	22	55 55.5
1544	35 Cancri . .			3 April 5	22 50.9	57.5	20 19 25.3	3 22.6	8 23 48.4	+20 16 2.7
1545	" . . .			3 April 8	22 50.5	57.6	20 19 25.7	3 22.8	23 48.1	16 2.9
1546	349 Mayer . .			3 April 8	23 15.4	57.6	20 30 28.1	3 23.3	8 24 13.0	+20 27 4.8
1547	350 Mayer . .		7	5 April 10	24 4.8	48.7	16 2 38.5	2 54.9	8 24 53.5	+15 59 43.6
1548	1 Leonis Minoris			3 April 9	24 44.5	62.7	33 32 47.3	3 29.5	8 25 47.2	+33 29 17.8
1549	" . . .		6	5 Mar. 19	24 53.3	54.0	33 32 18.3	3 0.1	25 47.3	29 18.2
1550	" . . .			5 April 5	8 24 52.6	+ 54.3	+33 32 20.7	— 3 1.4	8 25 46.9	+33 29 19.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1551	1 Leonis Minoris	6	5 April 9	8 24 51.8	+ 54.4	+33 32 20.4	− 3 1.6	8 25 46.2	+33 29 18.8
1552	36 Cancri c^1		3 April 2	25 20.2	54.2	10 23 45.6	3 22.1	8 26 14.4	+10 20 23.5
1553	" . . .		3 April 4	25 20.2	54.2	10 23 50.6	3 22.1	26 14.4	20 28.5
1554*	351 Mayer . .		5 April 11	25 27.7	49.8	20 0 11.0	2 57.6	8 26 17.5	+19 57 13.4
1555*	2 Leonis Minoris	7	5 April 5	26 8.1	54.2	33 15 32.8	3 2.5	8 27 2.3	+33 12 30.3
1556	" . . .	6	5 April 10	26 7.8	54.2	33 15 37.0	3 2.8	27 2.0	12 34.2
1557	4 Hydræ δ	4	5 April 11	(26)		6 26 21.9	2 53.6	8(27)	+ 6 23 28.3
1558	37 Cancri c^2		3 April 2	26 19.3	54.1	10 19 10.0	3 23.2	8 27 13.4	+10 15 46.8
1559*	" . . .		3 April 8	26 21.1	54.2	10 19 14.9	3 23.2	27 15.3	15 51.7
1560	3 Leonis Minoris		3 April 9	26 22.5	62.6	33 28 51.4	3 31.3	8 27 25.1	+33 25 20.1
1561*	" . . .	6.7	5 April 9	26 30.2	54.3	33 28 22.6	3 3.2	27 24.5	25 19.4
1562*	" . . .	7	5 April 10	26 31.3	54.3	33 28 27.3	3 3.3	27 25.6	25 24.0
1563	4 Leonis Minoris	7	5 April 11	(27)		32 41 26.2	3 3.4	8(28)	+32 38 22.8
1564	39 Cancri . .		3 April 14	27 37.4	57.7	20 45 41.0	3 28.6	8 28 35.1	+20 42 12.4
1565	363 Mayer . .	8.9	3 April 2	29 22.2	57.4	20 37 58.7	3 30.0	8 30 19.6	+20 34 28.7
1566	" . . .	6	3 April 8	29 21.7	57.5	20 38 6.1	3 30.3	30 19.2	34 35.8
1567	" . . .	7	5 April 9	29 28.9	49.9	20 37 35.0	3 1.8	30 18.8	34 33.2
1568	" . . .	7.8	5 April 10	29 29.5	49.9	20 37 37.8	3 1.8	30 19.4	34 36.0
1569	Lalande 17[illegible]1 .	7	5 April 5	29 48.0	55.6	37 28 25.8	3 7.6	8 30 43.6	+37 25 18.2
1570*	" . . .	6.7	5 April 11	29 47.8	55.6	37 28 31.8	3 7.9	30 43.4	25 23.9
1571	Lalande 17131 .	7.8	5 April 9	30		37 41 5.5	3 8.4	8 31	+37 37 57.1
1572	" . .	6.7	5 April 10	(30)		37 41 7.8	3 8.5	(31)	37 59.3
1573*	" . . .	6	5 April 11	30 22.6	55.8	37 41 4.7	3 8.6	31 18.4	37 56.1
1574*	43 Cancri γ		3 Feb. 18	30 43.7	57.5	22 14 8.5	3 30.0	8 31 41.2	+22 10 38.5
1575	" . . .		3 April 2	(30)		22 14 10.8	3 32.2	(31)	10 38.6
1576	" . . .		3 April 5	30 43.6	58.0	22 14 11.3	3 32.2	31 41.6	10 39.1
1577	" . . .		3 April 8	30 43.0	58.0	22 14 16.4	3 32.4	31 41.0	10 44.0
1578	" . . .		3 April 14	30 43.6	58.1	22 14 12.6	3 32.7	31 41.7	10 39.9
1579	" . . .		3 April 16	30 42.8	58.1	22 14 10.3	3 32.8	31 40 9	10 37.5
1580*	" . . .		3 April 19	30 43.2	58.1	22 14 17.0	3 32.9	31 41.3	10 44.1
1581	Lalande 17153–6	7.8	5 Mar. 14	30 57.0	53.4	32 49 22.0	3 5.4	8 31 50.4	+32 46 16.6
1582	Lalande 17182 .	7.8	5 April 9	31 49.0	55.9	38 3 43.0	3 10.0	8 32 44.9	+38 0 33.0
1583	46 Cancri . .		3 April 8	32 1.3	61.4	31 28 19.6	3 37.0	8 33 2.7	+31 24 42.6
1584	47 Cancri δ		3 April 2	(32)		18 56 23.5	3 32.8	8(33)	+18 52 50.7
1585	" . . .		3 April 16	32 20.6	57.0	18 56 22.8	3 33.4	33 17.6	52 49.4
1586*	" . . .		3 April 19	32 21.3	57.1	18 56 24.1	3 33.6	33 18.4	52 50.5
1587	Lalande 17204 .	7.8	3 April 4	32 25.9	60.5	29 13 7.8	3 36.3	8 33 26.4	+29 9 31.5
1588	" . . .	7.8	5 April 10	32 33.8	52.5	29 12 41.9	3 7.7	33 26.3	9 34.2
1589	49 Cancri b	6	5 April 11	33 5.4	47.1	10 50 47.8	3 2.0	8 33 52.5	+10 47 45.8
1590	48 Cancri ι		3 April 4	33 32.8	60.6	29 32 30.5	3 37.8	8 34 33.4	+29 28 52.7
1591	" . . .		3 April 8	33 32.8	60.6	29 32 29.6	3 38.0	34 33.4	28 51.6
1592	" . . .		3 April 14	33 34.5	60.7	29 32 27.3	3 38.4	34 35.2	28 48.9
1593*	Lalande 17256 .	7	5 April 5	34 10.6	52.3	28 56 18.8	3 9.3	8 35 2.9	+28 53 9.5
1594	" . . .	7	5 April 9	34 9.5	52.4	28 56 14.5	3 9.2	35 1.9	53 5.3
1595	50 Cancri A^2		3 April 8	35 2.4	54.8	12 53 36.1	3 34.0	8 35 57.2	+12 50 2.1
1596	11 Hydræ ε	4	5 Mar. 14	35 24.2	45.7	7 11 38.5	3 2.9	8 36 9.9	+ 7 8 35.6
1597	" . . .	4	5 April 11	35 25.0	46.1	7 11 36.2	3 3.0	36 11.1	8 33.2
1598	Lalande 17327,8	7.8	3 April 4	36 18.6	62.4	34 30 43.7	3 42.4	8 37 21.0	+34 27 1.3
1599	" . . .	7.8	5 April 10	36 26.8	54.3	34 30 20.0	3 13.3	37 21.1	27 6.7
1600	370 Mayer . .		3 April 14	36 43.4	55.0	13 20 6.0	3 36.2	8 37 38.4	+13 16 29.8
1601	" . . .	7	5 April 11	36		13 19 36.4	3 6.4	37	16 30.0
1602	13 Hydræ ρ	5.6	5 Mar. 21	37 4.2	45.6	6 37 7.2	3 4.2	8 37 49.8	+ 6 34 3.0
1603	5 Leonis Minoris	6.7	5 April 5	37 10.3	54.0	34 4 36.0	3 13.5	8 38 4.3	+34 1 22.5
1604	" . . .	6.7	5 April 10	37 10.9	54.1	34 4 39.9	3 13.9	38 5.0	1 26.0
1605	35 Lyncis . .	5.6	5 April 9	37 27.8	58.5	44 30 50.7	3 17.5	8 38 26.3	+44 27 33.2
1606	371 Mayer . .		3 April 14	38 22.8	56.7	18 47 52.8	3 39.9	8 39 19.5	+18 44 12.9
1607	372 Mayer . .	7	3 April 2	38 24.3	56.8	19 37 43.4	3 39.7	8 39 21.1	+19 34 3.7
1608	54 Cancri . .		3 Feb. 18	38 57.2	55.3	16 8 34.2	3 38.1	8 39 52.5	+16 4 56.1
1609	" . . .	7.6	5 April 11	39 3.5	48.4	16 8 7.0	3 9.6	39 51.9	4 57.4
1610	52 Cancri . .	7	3 April 5	8 39 2.4	+ 56.0	+16 47 43.1	− 3 39.5	8 39 58.4	+16 44 3.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1611	52 Cancri . .	7	3 April 8	8 39 1.5	+ 56.0	+16 47 43.4	− 3 39.7	8 39 57.5	+16 44 3.7
1612	51 Cancri σ^1		3 April 4	39 9.9	61.8	33 16 32.5	3 45.0	8 40 11.7	+33 12 47.5
1613	Bessel, W.1058 .	6.7	5 April 9	39		19 37 15.2	3 10.9	8 40	+19 34 4.3
1614	55 Cancri ρ^2		3 April 16	39 39.8	60.3	29 8 53.6	3 45.0	8 40 40.1	+29 5 8.6
†1615		7	5 Mar. 21	41 4.5	45.5	6 8 6.2	3 7.9	8 41 50.0	+ 6 4 58.3
1616	Piazzi 191 . .	7.8	5 April 5	41 5.7	48.8	18 10 5.3	3 12.0	8 41 54.5	+18 6 53.3
1617	" . . .	7	5 April 9	41 4.5	48.9	18 10 5.0	3 12.1	41 53.4	6 52.9
1618	57 Cancri ι^2	6	5 April 10	41 7.6	52.9	31 22 55.1	3 16.6	8 42 0.5	+31 19 38.5
1619	Lalande 17512 .	7	3 April 8	41 24.9	59.6	27 44 4.1	3 46.0	8 42 24.5	+27 40 18.1
1620	Piazzi 195 . .	7	5 April 11	41 37.8	49.6	20 46 3.8	3 13.6	8 42 27.4	+20 42 50.2
1621	Piazzi 196 . .	7	5 April 9	41 42.4	48.9	18 20 38.2	3 12.7	8 42 31.3	+18 17 25.5
1622	" . . .	7	5 April 10	41		18 20 46.4	3 12.8	42	17 33.6
1623	Bessel, W.1147,8	7	3 April 4	42 2.2	59.3	27 2 10.3	3 46.1	8 43 1.5	+26 58 24.2
1624	Piazzi 206 . .	6.7	5 April 9	43 15.8	48.8	18 2 9.6	3 14.1	8 44 4.6	+17 58 55.5
1625*	Lalande 17584 .	7	3 April 4	43 27.7	58.6	25 16 6.0	3 47.1	8 44 26.3	+25 12 18.9
1626	" . . .	6	3 April 5	43 28.0	58.6	25 16 4.4	3 47.1	44 26.6	12 17.3
1627	" . . .	7	5 April 10	43 35.2	50.8	25 15 39.7	3 16.9	44 26.0	12 22.8
1628*	59 Cancri σ^2		3 April 2	43 32.4	61.7	33 44 1.3	3 50.3	8 44 34.1	+33 40 11.0
1629	" . . .		3 April 8	43 32.0	61.8	33 44 3.5	3 50.7	44 33.8	40 12.8
1630	16 Hydræ ζ		3 Feb. 18	43 56.2	52.4	6 45 35.1	3 42.4	8 44 48.6	+ 6 41 52.7
1631	" . . .	4	5 Mar. 21	44 3.5	45.6	6 45 1.3	3 10.9	44 49.1	41 50.4
1632	" . . .	4	5 April 5	44 3.0	45.8	6 45 2.1	3 11.0	48.8	41 51.1
1633	60 Cancri α^1		3 April 2	44 4.6	54.4	12 26 32.4	3 43.5	8 44 59.0	+12 22 48.9
1634	" . . .		3 April 16	44 4.4	54.6	12 26 33.9	3 44.0	44 59.0	22 49.9
1635*	9 Ursæ Maj. ι		3 April 26	44 17.7	69.9	48 52 55.7	3 57.1	8 45 27.6	+48 48 58.6
1636	61 Cancri . .		3 April 14	44 47.5	60.8	31 3 16.2	3 51.1	8 45 48.3	+30 59 25.1
1637	62 Cancri o^1		3 April 14	45 9.3	55.7	16 8 25.9	3 46.4	8 46 5.0	+16 4 39.5
1638*	63 Cancri o^2		3 April 8	45 27.8	55.7	16 24 11.4	3 46.5	8 46 23.5	+16 20 24.9
1639	" . . .		3 April 14	45 27.4	55.8	16 24 9.3	3 46.7	46 23.2	20 22.6
1640	Lalande 17653 .	10.11	5 April 11	45 38.7	51.5	27 18 30.0	3 19.5	8 46 30.2	+27 15 10.5
1641	Lalande 17674 .	7.8	3 April 5	46 4.6	58.4	24 47 35.5	3 49.7	8 47 3.0	+24 43 45.8
1642	" . . .	9	5 April 10	46 12.4	50.7	24 47 6.9	3 19.1	47 3.1	43 47.8
1643	64 Cancri σ^3		3 April 16	46 12.2	61.6	33 15 4.1	3 53.3	8 47 13.8	+33 11 10.8
1644	65 Cancri α^2		3 Feb. 18	46 36.7	54.1	12 41 10.5	3 46.0	8 47 30.8	+12 37 24.5
1645	10 Ursæ Maj. .	4.5	5 April 9	46 38.5	57.0	42 37 18.5	3 25.4	8 47 35.5	+42 33 53.1
1646	Bessel, W.1271 .	7.8	5 Mar. 21	47 15.0	51.1	27 15 23.7	3 19.5	8 48 6.1	+27 12 4.2
1647	" . . .	8	5 April 10	47		27 15 27.3	3 20.9	48	12 6.4
1648	" . . .	6.7	5 April 11	47 14.9	51.4	27 15 23.6	3 20.9	48 6.3	12 2.7
1649	66 Cancri σ^4	7	3 April 4	48 5.3	61.3	33 5 21.9	3 54.5	8 49 6.6	+33 1 27.4
1650	67 Cancri ρ^5	6.7	3 April 2	48 52.5	59.6	28 44 42.8	3 53.8	8 49 52.1	+28 40 49.0
1651	" . . .	7	5 Mar. 21	49 0.2	51.5	28 44 16.4	3 21.5	49 51.7	40 54.9
1652	" . . .	7	5 April 5	48 59.6	51.7	28 44 17.9	3 22.7	49 51.3	40 55.2
1653	12 Ursæ Maj. κ		3 April 30	48 45.9	69.1	48 0 21.7	4 1.8	8 49 55.0	+47 56 19.9
1654	68 Cancri . .	7	5 April 10	49 40.2	48.6	17 54 43.8	3 20.0	8 50 28.8	+17 51 23.8
1655	69 Cancri ν		3 April 2	50 2.4	58.3	25 17 41.6	3 53.9	8 51 0.7	+25 13 47.7
1656	" . . .		3 April 4	50 2.6	58.4	25 17 41.6	3 54.0	51 1.0	13 47.6
1657	" . . .		3 April 5	50 2.4	58.4	25 17 44.3	3 54.0	51 0.8	13 50.3
1658	" . . .		3 April 8	50 2.0	58.4	25 17 41.4	3 54.3	51 0.4	13 47.1
1659*	" . . .		3 April 14	50 2.1	58.5	25 17 44.4	3 54.6	51 0.6	13 49.8
1660	" . . .	6	5 April 9	50 9.0	50.7	25 17 9.1	3 22.8	50 59.7	13 46.3
1661	" . . .	6.5	5 April 11	50 9.8	50.7	25 17 12.1	3 22.9	51 0.5	13 49.2
1662	70 Cancri ρ^6		3 Mar. 29	51 14.1	59.4	28 44 39.3	3 55.9	8 52 13.5	+28 40 43.4
1663	" . . .	7	5 Mar. 21	51 21.2	51.4	28 44 12.1	3 23.6	52 12.6	40 48.5
1664	" . . .	7.8	5 April 5	51 20.9	51.6	28 44 16.5	3 24.8	52 12.5	40 51.7
1665	" . . .	7	5 April 10	51 20.9	51.7	28 44 15.5	3 25.1	52 12.6	40 50.4
1666*	Flamsteed, B.1280	10	3 April 2	52 10.2	58.3	25 27 20.6	3 56.1	8 53 8.5	+25 23 24.5
1667	" . . .	8.9	3 April 5	52 9.8	58.3	25 27 22.7	3 56.3	53 8.1	23 26.4
1668	17 (Hev.) Lyncis	6	5 Mar. 21	52		39 18 3.0	3 27.8	8 53	+39 14 35.2
1669	" . . .	5.6	5 April 5	52 49.6	55.2	39 18 5.1	3 29.6	53 44.8	14 35.5
1670	1282 Bradley .	10	3 April 2	8 54 6.2	+ 55.9	+17 58 9.3	− 3 55.7	8 55 2.1	+17 54 13.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1671	Lalande 17932 .	8	5 April 10	8 54 14.9	+ 48.2	+16 42 30.9	− 3 23.6	8 55 3.1	+16 39 7.3
1672	73 Cancri . .	7.8	3 April 16	54 19.7	55.5	16 7 50.7	3 56.0	8 55 15.2	+16 3 54.7
1673	Lalande 17950 .	8	3 April 5	54 44.7	59.4	28 51 57.3	3 59.0	8 55 44.1	+28 47 58.3
1674*	72 Cancri τ		3 April 4	54 57.9	60.0	30 30 55.7	4 0.7	8 55 57.9	+30 26 55.0
1675	" . . .		3 April 8	54 57.4	60.0	30 30 59.3	4 1.0	55 57.4	26 58.3
1676	Piazzi 254 . .	6.7	5 Mar. 21	55 39.3	53.2	34 44 42.2	3 29.0	8 56 32.5	34 41 13.2
1677	" . . .	6.7	5 April 5	55 39.0	53.4	34 44 46.8	3 30.5	56 32.4	41 16.3
1678	75 Cancri . .	6.7	3 April 4	56 0.5	58.8	27 30 59.6	4 0.8	8 56 59.3	+27 26 58.8
1679	74 Cancri . .	6.7	3 April 14	56 8.7	55.3	15 34 26.1	3 57.6	8 57 4.0	+15 30 28.5
1680	" . . .	7	5 April 10	56 16.0	47.9	15 33 57.0	3 25.1	8 57 3.9	15 30 31.9
1681	78 Cancri . .	7.8	3 April 2	56 52.3	55.9	18 20 11.3	3 58.7	8 57 48.2	+18 16 12.6
1682	" . . .	7	3 April 16	56 52.1	56.1	18 20 15.6	3 59.3	57 48.2	16 16.3
1683	" . . .	7.8	5 April 11	56 59.8	48.6	18 19 39.0	3 26.7	57 48.4	16 12.3
1684	77 Cancri* ξ		3 April 13	56 52.5	57.5	22 54 47.4	4 0.7	8 57 50.0	+22 50 46.7
1685	Lalande 18032 .	8	3 April 5	57 4.1	59.9	30 25 38.1	4 2.8	8 58 4.0	+30 21 35.3
1686	Lalande 18033 .	8.9	3 Mar. 29	57 12.9	55.2	16 6 28.1	3 58.1	8 58 8.1	+16 2 30.0
1687	Lalande 18044,5	6.7	5 Mar. 21	57 39.6	52.1	31 49 41.1	3 29.9	8 58 31.7	+31 46 11.2
1688	" . . .	6.7	5 April 5	57 39.5	52.3	31 49 41.5	3 31.4	58 31.8	46 10.1
1689	79 Cancri . . .		3 April 5	57		22 52 1.8	4 0.3	8 58	+22 48 1.5
1690	" . . .	6	3 April 13	57 52.2	57.4	22 51 59.4	4 1.7	58 49.6	22 47 57.7
1691	" . . .		3 April 14	57 53.0	57.4	22 52 1.8	4 1.9	58 50.4	47 59.9
1692	395 Mayer . .	7	5 April 11	58		12 25 36.6	3 26.7	8 59	+12 22 9.9
1693	36 Lyncis . .	5	5 April 10	59 42.4	56.9	44 5 37.3	3 37.4	9 0 39.3	+44 1 59.9
1694	80 Cancri . .		3 April 4	59 45.8	56.0	18 55 18.5	4 1.9	9 0 41.8	+18 51 16.6
1695	" . . .		3 April 5	59 45.7	56.0	18 55 25.1	4 1.9	0 41.7	51 23.2
1696	" . . .	7.8	3 April 13	59 45.5	56.1	18 55 21.1	4 2.2	0 41.6	51 18.9
1697	" . . .	7	5 Mar. 21	59 54.3	48.4	18 54 45.3	3 35.2	0 42.7	51 10.1
1698	" . . .	7.8	5 April 5	8 59 52.9	48.7	18 54 51.0	3 29.2	0 41.6	51 21.8
1699*	81 Cancri π		3 Mar. 29	9 0 25.4	55.0	15 51 35.9	4 1.3	9 1 20.4	+15 47 34.6
1700	" . . .		3 April 14	0 24.7	55.2	15 51 34.6	4 1.9	1 19.9	47 32.7
1701	Lalande 18162 .	8.9	3 April 2	1 12.0	53.8	11 32 58.0	4 1.0	9 2 5.8	+11 28 57.0
1702	" . . .	9.10	5 April 11	1 19.4	46.8	11 32 19.1	3 28.3	2 6.2	28 50.8
1703	19 Ursæ Majoris	6	3 April 8	1 53.7	61.6	35 31 7.8	4 9.5	9 2 55.3	+35 26 58.3
1704	" . . .		3 April 16	1 53.7	61.7	35 31 7.2	4 10.1	2 55.4	26 57.1
1705	" . . .	6.7	5 April 5	2 1.4	53.3	35 30 42.2	3 36.3	2 54.7	27 5.9
1706	Lalande 18216 .		5 April 10	3 1.7	47.0	12 22 26.5	3 29.1	9 3 48.7	+12 18 57.4
1707	" . . .	8.9	5 April 11	3 1.0	47.0	12 22 26.0	3 29.9	3 48.0	18 56.1
1708*	82 Cancri . .		3 Mar. 29	3 15.9	55.0	15 49 46.0	4 4.1	9 4 10.9	+15 45 41.9
1709	" . . .		3 April 4	3 15.5	55.0	15 49 48.9	4 4.3	4 10.5	45 44.6
1710	" . . .	6	3 April 5	3 15.3	55.0	15 49 51.3	4 4.3	4 10.3	45 47.0
1711	" . . .		3 April 13	3 15.0	55.1	15 49 49.4	4 4.7	4 10.1	45 44.7
1712	Lalande 18251 .	9	3 April 5	3 53.6	55.0	15 53 57.6	4 5.0	9 4 48.6	+15 49 52.6
1713	Lalande 18256 .	7	5 Mar. 21	4 9.3	52.6	34 23 34.1	3 36.1	9 5 1.9	+34 19 58.0
1714	" . . .	7.8	5 April 5	4 10.5	52.8	34 23 33.4	3 37.8	5 3.3	19 55.6
1715	38 Lyncis . .		3 April 8	5 19.0	62.2	37 42 38.9	4 13.6	9 6 21.2	+37 38 25.3
1716	" . . .		3 April 16	5 19.0	62.4	37 42 40.9	4 14.2	6 21.4	38 26.7
1717*	398 Mayer . .	6.7	3 April 14	6 5.4	54.1	12 23 58.6	4 6.4	9 6 59.5	+12 19 52.2
1718	" . . .	6.7	5 April 11	6 12.3	46.9	12 23 21.0	3 32.7	6 59.2	19 48.3
1719	83 Cancri . .		3 Mar. 29	6 53.1	55.6	18 36 47.2	4 8.4	9 7 48.7	+18 32 38.8
1720	" . . .	7	3 April 2	6 52.4	55.7	18 36 52.5	4 8.6	7 48.1	32 43.9
1721*	" . . .		3 April 4	6 52.3	55.7	18 36 54.4	4 8.7	7 48.0	32 45.7
1722	" . . .		3 April 5	6 52.4	55.7	18 36 53.8	4 8.7	7 48.1	32 45.1
1723	" . . .		3 April 13	6 52.2	55.8	18 36 52.1	4 9.2	7 48.0	32 42.9
1724	" . . .	7	5 Mar. 21	6 59.8	48.1	18 36 19.6	3 34.2	7 47.9	32 45.4
1725	Lalande 18360,2	6	3 April 16	7 21.7	62.8	39 5 50.4	4 16.7	9 8 24.5	+39 1 33.7
1726	" . . .	7	5 April 5	7 29.7	54.3	39 5 19.0	3 41.9	8 24.0	1 37.1
1727	40 Lyncis . .		3 April 8	7 48.9	61.1	35 17 58.7	4 15.1	9 8 50.0	+35 13 43.6
1728	" . . .		3 April 26	7 48.9	61.4	35 18 4.0	4 16.6	8 50.3	13 47.4
1729	Lalande 18412 .	6.7	5 Mar. 21	9 24.3	47.5	16 16 18.7	3 35.7	9 10 11.8	+16 12 43.0
1730	" . . .	7.8	5 April 5	9 9 23.9	+ 47.7	+16 16 19.4	− 3 36.4	9 10 11.6	+16 12 43.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1731	Lalande 18414	7.8	3 April 4	9 9 22.5	+ 55.3	+17 30 41.4	− 4 10.7	9 10 17.8	+17 26 30.7
1732	"	7.8	5 April 10	9 29.2	48.0	17 30 8.2	3 37.0	10 17.2	26 31.2
1733	Lalande 18422	8.9	3 April 14	9 36.5	56.1	19 40 1.7	4 12.2	9 10 32.6	+19 35 49.5
1734	Lalande 18424	9	3 April 2	9 37.1	56.7	22 24 40.2	4 12.4	9 10 33.8	+22 20 27.8
1735	"	8	5 April 11	9 45.1	49.2	22 24 4.5	3 38.9	10 34.3	20 25.6
1736	6 Leonis Minoris		3 April 5	10 58.0	57.8	26 5 59.4	4 15.0	9 11 55.8	+26 1 44.4
1737	"	6	3 April 8	10 57.7	57.8	26 5 59.4	4 15.2	11 55.5	1 44.2
1738	"		3 April 13	10 57.8	57.9	26 6 2.9	4 15.5	11 55.7	1 47.4
1739	Lalande 18466	6	3 April 16	10 56.9	61.9	37 30 29.5	4 19.5	9 11 58.8	+37 26 10.0
1740	"	6.7	5 April 10	11 4.2	53.6	37 30 0.5	3 44.8	11 57.8	26 15.7
1741*	402 Mayer		3 Mar. 29	11 30.6	57.9	26 50 22.7	4 15.1	9 12 28.5	+26 46 7.6
1742	"	7	3 April 2	11 30.3	58.0	26 50 21.7	4 15.5	12 28.3	46 6.2
1743*	"		3 April 4	11 29.9	58.0	26 50 20.0	4 15.6	12 27.9	46 4.4
1744	1 Leonis κ		3 Feb. 18	12 0.4	57.8	27 6 18.4	4 12.6	9 12 58.2	+27 2 5.8
1745	"		3 Mar. 29	12 0.9	58.0	27 6 18.7	4 15.7	12 58.9	2 3.0
1746*	"		3 April 2	12 0.3	58.0	27 6 19.2	4 16.0	12 58.3	2 3.2
1747	"		3 April 4	12 0.9	58.0	27 6 22.0	4 16.2	12 58.9	2 5.8
1748	"		3 April 5	12 0.7	58.0	27 6 23.0	4 16.2	12 58.7	2 6.8
1749	"		3 April 26	11 59.7	58.4	27 6 25.7	4 17.8	12 58.1	2 7.9
1750	"		3 April 28	12 0.2	58.4	27 6 21.8	4 17.9	12 58.6	2 3.9
1751	"		3 April 29	12 0.2	58.4	27 6 25.3	4 17.9	12 58.6	2 7.4
1752	"		5 April 30	11 59.9	58.4	27 6 26.5	4 18.0	12 58.3	2 8.5
1753	Lalande 18508,9	7	5 Mar. 21	12 30.9	48.1	19 3 15.4	3 38.9	9 13 19.0	+18 59 36.5
1754	"	8.9	5 April 5	12 30.1	48.3	19 3 17.8	3 39.8	13 18.4	59 38.0
1755	Lalande 18520	8	3 April 14	12 35.1	55.7	18 37 55.2	4 14.6	9 13 30.8	+18 33 40.6
1756	"	7	5 April 11	12 42.7	48.2	18 37 21.2	3 40.1	13 30.9	33 41.1
1757	Lalande 18545	7	3 April 8	13 15.7	61.7	37 23 16.8	4 20.0	9 14 17.4	+37 18 56.8
1758	"	6.7	3 April 16	13 15.8	61.7	37 23 16.0	4 21.7	14 17.5	18 54.3
1759	"	7	5 April 10	13 23.9	53.4	37 22 41.5	3 46.6	14 17.3	18 54.9
1760	41 Lyncis		3 April 13	14 23.9	65.7	46 32 37.7	4 25.3	9 15 29.6	+46 28 12.4
1761	Piazzi 84	6.7	3 April 2	15 2.9	54.5	15 14 1.8	4 15.3	9 15 57.4	+15 9 46.5
1762	"	7.8	3 April 4	15 2.7	54.6	15 14 4.9	4 15.3	15 57.3	9 49.6
1763	"	7	5 April 11	15 10.4	47.4	15 13 31.1	3 41.0	15 57.8	9 50.1
1764	2 Leonis ω		3 Feb. 18	16 50.4	52.9	9 59 25.9	4 15.6	9 17 45.3	+ 9 55 10.3
1765	"		3 Mar. 29	16 51.6	53.1	9 59 24.8	4 15.3	17 44.7	55 9.5
1766*	"		3 April 2	16 49.5	53.1	9 59 23.1	4 15.4	17 42.6	55 7.7
1767	"		3 April 5	16 50.8	53.2	9 59 26.4	4 15.4	17 44.0	55 11.0
1768*	"		3 April 8	16 50.4	53.2	9 59 28.1	4 15.6	17 43.6	55 12.5
1769	"		3 April 14	16 50.4	53.3	9 59 26.6	4 15.8	17 43.7	55 10.8
1770	"	6	5 Mar. 21	16 58.0	45.9	9 58 49.3	3 40.2	17 43.9	55 9.1
1771	"	5	5 April 5	16 57.6	46.1	9 58 54.8	3 40.6	17 43.7	55 14.2
1772	Lalande 18631	7	3 April 16	16 47.3	60.4	34 29 27.7	4 24.0	9 17 47.7	+34 25 3.7
1773	"	6.7	5 April 10	16 55.2	52.3	+34 28 53.5	3 48.5	17 47.5	25 5.0
1774	30 Hydræ α		3 April 29	(16)		− 7 43 47.8	4 10.5	9(17)	− 7 47 58.3
1775	"		3 April 30	16 56.5	49.1	7 43 47.8	4 10.5	17 45.6	47 58.3
1776	"		3 May 2	16 56.4	49.1	7 43 46.7	4 10.6	17 45.5	47 57.3
1777	"		3 May 16	16 56.7	48.9	− 7 43 48.7	4 11.1	17 45.6	47 59.8
1778	3 Leonis	6	3 April 4	16 56.3	53.0	+ 9 7 27.5	4 15.3	9 17 49.3	+ 9 3 12.2
1779*	"		3 April 8	16 55.6	53.0	9 7 26.9	4 15.3	17 48.6	3 11.6
1780	7 Leonis Minoris		3 April 13	17 35.2	60.4	34 36 0.3	4 24.4	9 18 35.6	+34 31 35.9
1781	"	6	3 April 16	17 35.1	60.4	34 36 0.3	4 24.6	18 35.5	31 35.7
1782	"	6	5 April 10	17 43.5	52.3	34 35 29.6	3 49.2	18 35.8	31 40.4
1783	Lalande 18662	7	5 Mar. 21	18 12.4	48.8	22 44 41.2	3 44.4	9 19 1.2	+22 40 56.8
1784	"	7	5 April 11	18 11.7	49.1	22 44 40.6	3 45.8	19 0.8	40 54.8
1785	8 Leonis Minoris	6	5 April 10	18		36 2 37.6	3 49.7	9 19	+35 58 47.9
1786	4 Leonis λ		3 Mar. 29	19 19.9	56.7	23 54 53.0	4 21.4	9 20 16.6	+23 50 31.6
1787	"		3 April 2	19 19.8	56.8	23 54 50.9	4 21.8	20 16.6	50 29.1
1788	"		3 April 4	19 20.0	56.8	23 54 55.4	4 21.9	20 16.8	55 33.5
1789*	"		3 April 5	19 20.1	56.8	23 54 54.3	4 21.9	20 16.9	50 32.4
1790	"		3 April 8	9 19 19.6	+ 56.9	+23 54 51.3	− 4 22.1	9 20 16.5	+23 50 29.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1791	4 Leonis λ		3 April 14	9 19 19.8	+ 57.0	+23 54 53.7	− 4 22.6	9 20 16.8	+23 50 31.1
1792	" . . .	4.5	5 April 11	19 26.9	49.3	23 54 19.7	3 47.2	20 16.2	50 32.5
1793	5 Leonis ξ		3 Feb. 18	20 15.8	53.4	12 14 56.3	4 18.4	9 21 9.2	+12 10 37.9
1794	9 Leonis Minoris	7	3 April 16	20 9.9	61.3	37 26 16.4	4 27.9	9 21 11.2	+37 21 48.5
1795	" . . .		3 April 26	20 8.9	61.5	37 26 22.5	4 28.8	21 10.4	21 53.7
1796	6 Leonis h	6	3 April 5	(20)		10 39 41.0	4 18.8	9(21)	+10 35 22.2
1797	" . . .		3 April 8	20 20.8	53.3	10 39 38.7	4 18.9	21 14.7	35 19.8
†1798			5 Mar. 21	20 31.8	47.1	15 29 20.6	3 44.4	9 21 18.9	+15 25 36.2
1799*	10 Leonis Minoris	4.5	3 April 13	20 53.9	61.2	37 21 8.5	4 28.2	9 21 55.1	+37 16 40.3
1800	" . . .	4.5	3 April 16	20 53.9	61.2	37 21 5.5	4 28.5	21 55.1	16 37.0
1801	Lalande 18775 .	7	5 April 5	21 42.2	49.3	24 24 9.0	3 48.7	9 22 31.5	+24 20 20.3
1802	" . . .	6.7	5 April 10	21 42.8	49.3	24 24 5.0	3 48.9	22 32.1	20 16.1
1803	" . . .	6	5 April 11	21 43.0	49.4	24 24 3.6	3 49.1	22 32.4	20 14.5
1804*	11 Leonis Minoris		3 April 13	22 36.8	60.9	36 47 1.5	4 29.6	9 23 37.7	+36 42 31.9
1805	" . . .	6	3 April 16	22 36.9	60.9	36 46 58.9	4 29.9	23 37.8	42 29.0
1806	410 Mayer . .	7	3 April 14	23 13.5	54.1	13 36 40.7	4 22.7	9 24 7.6	+13 32 18.0
1807	" . . .	7	5 April 10	23 20.6	46.8	13 36 4.3	3 46.9	24 7.4	32 17.4
1808	Bessel, W.591 .	8.9	3 Mar. 29	23 19.5	54.2	15 1	4 22.4	9 24 13.7	+14 57
1809	" . . .	8.9	3 April 5	23 19.2	54.3	15 1 48.1	4 22.7	24 13.5	57 25.4
1810*	" . . .	9	5 April 11	23 26.0	47.1	15 1 15.7	3 47.7	24 13.1	57 28.0
1811	7 Leonis . . .		3 Mar. 29	24 2.3	54.3	15 20 18.4	4 23.2	9 24 56.6	+15 15 55.2
1812	" . . .		3 April 2	24 2.1	54.3	15 20 12.9	4 23.4	24 56.4	15 49.5
1813	" . . .		3 April 4	24 1.8	54.4	15 20 17.0	4 23.4	24 56.2	15 53.6
1814	" . . .		3 April 5	24 1.7	54.4	15 20 18.0	4 23.4	24 56.1	15 54.6
1815	" . . .		3 April 8	24 1.5	54.4	15 20 15.0	4 23.6	24 55.9	15 51.4
1816*	" . . .	6	5 April 11	24 9.1	47.2	15 19 41.7	3 48.1	24 56.3	15 53.6
1817	" . . .	6	5 Mar. 21	24 9.5	47.0	15 19 39.8	3 47.1	24 56.5	15 52.7
1818*	" . . .	7	5 Mar. 23	24 8.6	47.0	15 19 40.5	3 47.2	24 55.6	15 53.3
1819*	8 Leonis . . .		3 April 8	25 4.1	54.9	17 24 1.3	4 25.2	9 25 59.0	+17 19 36.1
1820	10 Leonis . .		3 Feb. 18	25 46.2	52.3	7 47 53.1	4 23.4	9 26 38.5	+ 7 43 29.7
1821	" . . .		3 Feb. 26	25 46.5	52.2	7 47 49.1	4 22.9	26 38.7	43 26.2
1822	11 Leonis . .		3 April 2	26 11.4	54.3	15 19 1.3	4 25.2	9 27 5.7	+15 14 36.1
1823	" . . .	6.7	3 April 5	26 11.8	54.3	15 19 3.8	4 25.4	27 6.1	14 38.4
1824*	" . . .		3 April 14	26 11.2	54.4	15 19 7.1	4 25.8	27 5.6	14 41.3
1825	Piazzi 133 . .	6.7	3 April 16	26 19.6	60.5	36 12 49.9	4 32.9	9 27 20.1	+36 8 17.0
1826	Lalande 18921 .	7.8	5 April 5	26 37.3	46.7	13 41 35.6	3 49.1	9 27 24.0	+13 37 46.5
1827	" . . .	7	5 April 10	26 37.6	46.8	13 41 28.8	3 49.4	27 24.4	37 39.4
1828	" . . .	6.7	5 April 11	26 37.5	46.8	13 41 30.9	3 49.4	27 24.3	37 41.5
1829	Piazzi 135 . .	6	5 Mar. 21	26 50.5	48.2	21 15 24.3	3 50.5	9 27 38.7	+21 11 33.8
1830	" . . .	7.8	5 Mar. 23	26 49.3	48.2	21 15 23.0	3 50.6	27 37.5	11 32.4
1831	Flamsteed, B.1359		3 April 13	26 48.7	60.4	36 18 25.0	4 33.0	9 27 49.1	+36 13 52.0
1832	" . . .	6	3 April 16	26 48.9	60.5	36 18 28.4	4 33.4	27 49.4	13 55.0
1833*	413 Mayer . .	7	3 April 19	27 30.8	54.2	14 16 54.0	4 26.9	9 28 25.0	+14 12 27.1
1834	Lalande 18976 .	9	3 Feb. 26	28 39.3	52.6	9 14 55.3	4 25.6	9 29 31.9	+ 9 10 29.7
1835	43 Lyncis . .	6.5	5 April 10	28 40.2	53.7	40 43 43.8	3 59.3	9 29 33.9	+40 39 44.5
1836	Lalande 18986 .	8	5 April 5	28 55.8	46.7	14 1 29.7	3 51.0	9 29 42.5	+13 57 38.7
1837	" . . .	7	5 April 11	28 55.5	46.8	14 1 23.7	3 51.3	29 42.3	57 32.4
1838	13 Leonis . .	8	3 April 2	29 9.0	57.2	26 53 26.1	4 31.2	9 30 6.2	+26 48 54.9
1839	" . . .		3 April 4	29 9.7	57.2	26 53 28.1	4 31.3	30 6.9	48 56.8
1840	" . . .		3 April 5	29 9.0	57.2	26 53 28.9	4 31.3	30 6.2	48 57.6
1841	13 Leonis Minoris	6	3 April 8	29 36.2	60.1	36 4 35.4	4 34.8	9 30 36.3	+36 0 0.6
1842	" . . .	6	3 April 13	29 36.0	60.2	36 4 39.1	4 35.3	30 36.2	0 3.8
1843	" . . .		3 April 16	29 36.2	60.2	36 4 38.8	4 35.6	30 36.4	0 3.2
1844	14 Leonis o		3 Feb. 18	29 34.8	52.9	10 52 9.5	4 26.9	9 30 27.7	+10 47 42.6
1845	" . . .		3 Feb. 26	29		10 52 6.0	4 26.6	30	47 39.4
1846	" . . .		3 Mar. 29	29 35.9	53.1	10 52 8.5	4 26.8	30 29.0	47 41.7
1847	" . . .		3 April 19	29 35.5	53.3	10 52 7.9	4 26.6	30 28.8	47 41.3
1848*	" . . .		3 April 26	29 33.4	53.4	10 52 10.2	4 26.2	30 26.8	47 44.0
1849	" . . .		3 April 28	29 31.5	53.4	10 52 5.3	4 28.0	30 24.9	47 37.3
1850	" . . .		3 April 29	9 29 31.0	+ 53.5	+10 52 12.3	− 4 26.0	9 30 24.5	+10 47 46.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1851	14 Leonis o		3 April 30	9 29 34.2	+ 53.5	+10 52 14.4	— 4 28.1	9 30 27.7	+10 47 46.3
1852	" . . .	3.4	5 April 26	29 41.8	46.3	10 51 35.3	3 51.5	30 28.1	47 43.8
1853	Lalande 19048 .	8	5 April 10	30 49.6	51.8	35 4 15.4	3 59.2	9 31 41.4	+35 0 16.2
1854	15 Leonis f		3 April 2	30 49.5	58.4	30 57 46.1	4 32.8	9 31 47.9	+30 53 13.3
1855	Lalande 19068 .	7.8	3 April 8	31 11.0	59.9	35 42 22.7	4 36.0	9 32 10.9	+35 37 46.7
1856*	" . . .	9.10	5 April 11	31 19.4	51.9	35 41 50.3	3 59.8	32 11.3	37 50.5
1857	16 Leonis ψ		3 April 4	31 55.1	54.1	15 0 16.1	4 30.1	9 32 49.2	+14 55 46.0
1858	" . . .		3 April 5	31 55.5	54.1	15 0 18.4	4 30.1	32 49.6	55 48.3
1859	" . . .		3 April 13	31 54.8	54.2	15 0 15.3	4 30.6	32 49.0	55 44.7
1860*	" . . .		3 April 14	31 55.5	54.2	15 0 17.2	4 30.6	32 49.7	55 46.6
1861	" . . .	6	5 Mar. 21	32 3.8	46.7	14 59 39.1	3 52.9	32 50.5	55 46.0
1862	14 Leonis Minoris	7	5 April 5	32(55)	55.2	46 6 13.7	4 3.3	9 33(50)	+46 2 10.4
1863	" . . .	7	5 April 10	32 55.2	55.3	46 6 14.7	4 4.0	33 50.5	2 10.7
1864	Piazzi 163 . .	7	3 Feb. 26	32 56.3	56.2	24 27 46.7	4 31.0	9 33 52.5	+24 23 15.7
1865	" . . .	7	3 April 2	32 56.1	56.4	24 27 48.3	4 33.5	33 52.5	23 14.8
1866	" . . .	8	3 April 19	32 55.0	56.6	24 27 53.7	4 34.9	33 51.6	23 18.8
1867	17 Leonis ε		3 Feb. 18	33 31.5	56.3	24 45 49.2	4 31.0	9 34 27.8	+24 41 18.2
1868	" . . .		3 Feb. 26	33 31.7	56.2	24 45 45.3	4 31.4	34 27.9	41 13.9
1869	" . . .		3 Mar. 21	33 31.4	56.3	24 45 50.2	4 33.1	34 27.7	41 17.1
1870	" . . .		3 Mar. 29	33 31.7	56.4	24 45 45.6	4 33.8	34 28.1	41 11.8
1871	" . . .		3 April 2	33 31.6	56.4	24 45 49.1	4 34.0	34 28.0	41 15.1
1872	" . . .		3 April 4	33 32.1	56.5	24 45 51.6	4 34.2	34 28.6	41 17.4
1873	" . . .		3 April 5	33 31.5	56.4	24 45 54.4	4 34.3	34 27.9	41 20.1
1874	" . . .		3 April 8	33 31.1	56.5	24 45 50.6	4 34.6	34 27.6	41 16.0
1875	" . . .		3 April 29	(33)	56.8	24 45 53.7	4 36.2	(34)	41 17.5
1876	" . . .		3 April 30	33 31.2	56.8	24 45 52.5	4 36.2	34 28.0	41 16.3
1877*	" . . .		3 May 16	33 30.7	56.8	24 45 51.6	4 37.0	34 27.5	41 14.6
1878	18 Leonis . .		3 April 8	34 41.9	53.5	12 47 55.0	4 31.9	9 35 35.4	+12 43 23.1
1879	" . . .		3 April 14	34 42.0	53.6	12 47 56.6	4 32.2	35 35.6	43 24.4
1880	15 Leonis Minoris	6	3 April 16	34 33.2	64.2	47 1 25.2	4 43.1	9 35 37.4	+46 56 42.1
1881	Lalande 19172,3 .	6.7	3 Feb. 26	35 3.9	56.1	24 38 25.0	4 32.4	9 36 0.0	+24 33 52.6
1882	" . . .	7	3 Mar. 21	35 3.1	56.2	24 38 32.5	4 34.3	35 59.3	33 58.2
1883	" . . .	7.8	3 April 2	35 3.3	56.3	24 38 29.9	4 35.4	35 59.6	33 54.5
1884	" . . .	7.8	3 April 4	35 3.4	56.4	24 38 30.7	4 35.5	35 59.8	33 55.2
1885	" . . .	8	3 April 5	35 3.8	56.4	24 38 32.2	4 35.5	36 0.2	33 56.7
1886	" . . .	7	3 April 19	35 3.3	56.6	24 38 31.6	4 36.7	35 59.9	33 54.9
1887	19 Leonis . .	7	3 April 8	35 44.8	53.5	12 33 44.8	4 32.8	9 36 38.3	+12 29 12.0
1888	" . . .		3 April 14	35 44.8	53.5	12 33 42.8	4 33.1	36 38.3	29 9.7
1889	Bessel, W.856 .	6	5 April 11	36 27.3	52.2	37 44 19.8	4 4.0	9 37 19.5	+37 40 15.8
1890	Johnson 2399 .	7.	5 April 10	36 49.4	54.6	46 4 56.4	4 6.4	9 37 44.0	+46 0 50.0
1891	16 Leonis Minoris	7.8	5 April 5	37 0.0	53.0	40 37 24.9	4 4.6	9 37 53.0	+40 33 20.3
1892	" . . .	5	5 April 26	37 0.7	53.4	40 37 29.5	4 6.8	37 54.1	33 22.7
†1893		6	3 Feb. 26	37 42.6	56.3	25 34 42.6	4 34.8	9 38 38.9	+25 30 7.8
1894	20 Leonis .		3 Mar. 29	37 41.7	55.6	22 10 53.9	4 36.5	9 38 37.3	+22 6 17.4
1895	" . . .		3 April 4	37 42.8	55.6	22 10 57.4	4 36.9	38 38.4	6 20.5
1896	" . . .		3 April 13	37 40.6	55.7	22 10 54.1	4 37.5	38 36.3	6 16.6
1897	Piazzi 183 . .	7.8	3 April 8	37 49.8	56.5	25 33 44.9	4 38.4	9 38 46.3	+25 29 6.5
1898*	" . . .	8	3 April 19	37 50.8	56.7	25 33 46.3	4 39.3	38 47.5	29 7.0
1899	21 Leonis . .	6	3 Feb. 26	39 9.8	53.2	12 50 44.2	4 34.7	9 40 3.0	+12 46 9.5
1900*	17 Leonis Minoris	6.7	3 April 16	39 9.5	60.6	38 55 30.9	4 44.3	9 40 10.1	+38 50 46.6
1901	" . . .	6.7	5 April 11	39 18.7	52.4	38 54 52.1	4 6.4	40 11.1	50 45.7
1902	23 Leonis . .		3 April 14	39 17.9	53.8	14 4 16.8	4 36.3	9 40 11.7	+13 59 40.5
1903	22 Leonis g		3 April 2	39 34.1	56.3	25 24 46.6	4 39.1	9 40 30.4	+25 20 7.5
1904	" . . .	8.9	3 April 5	39 33.6	56.4	25 24 50.7	4 39.3	40 30.0	20 11.4
1905	" . . .		3 April 8	39 33.0	56.4	25 24 47.7	4 39.6	40 29.4	20 8.1
1906	" . . .	6.5	3 April 19	39 33.7	56.6	25 24 53.9	4 40.5	40 30.3	20 13.4
1907	" . . .	6	5 April 5	39 41.2	48.9	25 24 11.9	4 2.0	40 30.1	20 9.9
1908*	" . . .	6.5	5 April 10	39 41.2	48.9	25 24 10.4	4 2.4	40 30.1	20 8.0
1909	" . . .	6	5 April 26	39 41.2	49.1	25 24 13.1	4 3.7	40 30.3	20 9.4
1910*	24 Leonis μ		3 Feb. 18	9 40 24.7	+ 56.6	+27 1 7.1	— 4 36.6	9 41 21.3	+26 56 30.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1911	24 Leonis μ		3 Mar. 21	9 40 24.7	+ 56.6	+27 1 11.8	− 4 39.1	9 41 21.3	+26 56 32.7
1912	" . . .		3 Mar. 29	40 25.1	56.7	27 1 8.7	4 39.9	41 21.8	56 28.8
1913	" . . .		3 April 2	40 24.9	56.7	27 1 12.5	4 40.3	41 21.6	56 32.2
1914	" . . .		3 April 4	40 25.0	56.8	27 1 11.7	4 40.4	41 21.8	56 31.3
1915	" . . .		3 April 26	40 24.2	57.0	27 1 15.0	4 42.3	41 21.2	56 32.7
1916	" .		3 April 28	(40)	57.0	27 1 10.9	4 42.5	(41)	56 28.4
1917*	" . . .		3 April 29	40 24.9	57.0	27 1 14.1	4 42.6	41 21.9	56 31.5
1918	" . . .		3 April 30	40 24.8	57.1	27 1 14.6	4 42.6	41 21.9	56 32.0
1919	" . . .		3 May 2	40 24.7	57.1	27 1 13.4	4 42.7	41 21.8	56 30.7
1920	Lalande 19377 .	8	5 April 11	42 31.0	46.0	11 15 33.8	4 0.1	9 43 17.0	+11 11 33.7
1921	423 Mayer . .	7.8	3 April 14	42 37.4	52.6	9 5 20.8	4 37.5	9 43 30.0	+ 9 0 43.3
1922	" . . .	8.9	3 April 19	42 38.0	52.7	9 5 20.4	4 37.6	43 30.7	0 42.8
1923	Lalande 19386 .	8.9	3 Mar. 29	42 47.9	56.2	25 39 36.0	4 41.4	9 43 44.1	+25 34 54.6
1924	18 Leonis Minoris	6	3 April 26	43 46.5	58.6	33 24 21.4	4 47.1	9 44 45.1	+33 19 34.3
1925	" . . .	6	3 April 28	43 46.7	58.7	33 24 18.6	4 47.3	44 45.4	19 31.3
1926	Piazzi 208 . .	7	5 April 11	44 34.7	45.4	8 41 9.5	4 0.7	9 45 20.1	+ 8 37 8.8
1927	19 Leonis Minoris		3 April 26	(44)	61.4	42 4 58.8	4 50.4	9(45)	+42 0 8.4
1928	" . . .	5.6	3 April 29	44 22.0	61.5	42 4 57.3	4 50.7	45 23.5	0 6.6
1929*	Lalande 19442 .	8.9	3 Feb. 18	44 51.4	53.8	15 45 7.2	4 39.4	9 45 45.2	+15 40 27.8
1930	" . . .	7.8	3 April 16	44 50.1	54.0	15 45 12.4	4 41.3	45 44.1	40 31.1
1931	10 Sextantis . .	6.7	3 April 14	44 56.0	52.8	9 57 6.3	4 39.5	9 45 48.8	+ 9 52 26.8
1932	" . . .	8	3 April 19	44 56.5	52.8	9 57 6.5	4 39.8	45 49.3	52 26.7
1933	Lalande 19476,8		3 April 12	45 40.1	55.2	21 11 49.0	4 43.5	9 46 35.3	+21 7 5.5
1934	26 Leonis . .	6.7	3 April 13	46 23.6	54.1	16 14 50.9	4 42.4	9 47 17.7	+16 10 8.5
1935	27 Leonis ν		3 Mar. 29	46 34.3	53.3	13 28 17.1	4 41.1	9 47 27.6	+13 23 36.0
1936	" . . .		3 April 2	46 33.9	53.3	13 28 12.2	4 41.2	47 27.2	23 31.0
1937	" . . .		3 April 5	46 34.2	53.4	13 28 19.2	4 41.4	47 27.6	23 37.8
1938	" . . .		3 April 8	46 33.5	53.4	13 28 10.9	4 41.5	47 26.9	23 29.4
1939	" . . .		3 April 14	46 33.6	53.5	13 28 17.3	4 41.8	47 27.1	23 35.5
1940	" . . .		3 April 30	46 33.4	53.7	13 28 17.5	4 42.7	47 27.1	23 34.8
1941	11 Sextantis . .	6	5 April 10	46 45.4	45.5	9 19 46.2	4 2.3	9 47 30.9	+ 9 15 43.9
1942	" . . .	7	5 April 11	46 45.3	45.5	9 19 46.3	4 2.4	47 30.8	15 43.9
1943	Lalande 19515 .	7.8	3 Feb. 26	47 3.7	52.9	11 59 3.7	4 40.7	9 47 56.6	+11 54 23.0
1944	" . . .	9	3 April 19	47 3.8	53.2	11 59 2.6	4 42.1	47 57.0	54 20.5
1945	29 Leonis π		3 Feb. 18	48 45.3	52.3	9 4 33.5	4 42.1	9 49 37.6	+ 8 59 51.4
1946*	" . . .		3 Mar. 29	(48)		9 4 36.7	4 41.6	(49)	59 55.1
1947*	" . . .		3 April 2	48 45.5	52.4	9 4 33.6	4 41.8	49 37.9	59 51.8
1948	" . . .		3 April 5	48 45.3	52.4	9 4 35.9	4 41.8	49 37.7	59 54.1
1949	" . . .		3 April 8	48 45.2	52.4	9 4 36.0	4 41.9	49 37.6	59 54.1
1950	" . . .		3 April 14	48 45.3	52.5	9 4 34.8	4 42.1	49 37.8	59 52.7
1951	" . . .		3 April 16	48 44.6	52.5	9 4 35.1	4 42.2	49 37.1	59 52.9
1952	" . . .		3 April 28	48 45.3	52.7	9 4 29.5	4 42.7	49 38.0	59 46.8
1953	" . . .		3 April 29	48 45.2	52.7	9 4 31.6	4 42.8	49 37.9	59 48.8
1954	" . . .		3 April 30	48 45.1	52.7	9 4 33.3	4 42.8	49 37.8	59 50.5
1955	" . . .		3 May 2	48 44.7	52.7	9 4 33.7	4 43.0	49 37.4	59 50.7
1956	" . . .	4	5 April 10	(48)	45.4	9 3 56.7	4 3.5	(49)	59 53.2
1957	" . . .	6.5	5 April 11	48 52.4	45.4	9 3 55.6	4 3.7	49 37.8	59 51.9
1958	" . . .	4	5 April 26	48 52.4	45.6	9 3 59.9	4 4.3	49 38.0	59 55.6
1959*	15 (Hev.) Leonis		3 April 12	50 42.7	55.4	22 59 15.2	4 37.7	9 51 38.1	+22 54 37.5
1960	" . . .	6.7	5 April 11	50 50.1	48.0	22 58 35.8	4 9.1	51 38.1	54 26.7
1961	Flamsteed, B.1422	9.10	3 April 4	51 49.0	52.4	9 16 7.5	4 44.2	9 52 41.4	+ 9 11 23.3
1962	" . . .	8.9	3 April 8	51 48.0	52.4	9 16 9.2	4 44.2	52 40.4	11 28.0
1963	" . . .	9	3 April 19	51 48.4	52.6	9 16 9.4	4 44.6	52 41.0	11 24.8
1964	Lalande 19635 .	9	3 April 2	51 57.9	54.6	19 59 43.0	4 47.0	9 52 52.5	+19 54 56.0
1965	428 Mayer . .		3 April 5	52 2.5	52.7	+10 56	4 44.8	9 52 55.2	+10 51
1966*	" . . .	7	5 April 10	52 8.1	45.7	10 55 47.3	4 6.3	52 53.8	51 41.0
†1967		8	3 April 14	52 9.5	48.8	− 9 4 25.9	4 39.7	9 52 58.3	− 9 9 5.6
1968	429 Mayer . .	8	3 April 30	52 31.8	53.4	+12 40 6.8	4 46.9	9 53 25.2	+12 35 19.9
1969	" . . .	7	5 April 26	52 38.0	46.2	12 39 37.6	4 8.0	53 24.2	35 29.6
1970*	430 Mayer . .	9	3 April 14	9 53 36.9	+ 52.4	+ 9 1 59.4	− 4 45.7	9 54 29.3	+ 8 57 13.7

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
1971	430 Mayer . .	7	5 Mar. 23	9 53 43.8	+ 45.2	+ 9 1 22.2	− 4 6.3	9 54 29.0	+ 8 57 15.9
1972*	431 Mayer . .	7	3 Mar. 29	53 56.1	53.8	16 48 15.6	4 47.3	9 54 49.9	+16 43 28.3
1973	" . . .	7	3 April 2	53 54.9	53.8	16 48 11.5	4 47.6	54 48.7	43 23.9
1974	" . . .		3 April 4	53 55.0	53.9	16 48 10.6	4 47.6	54 48.9	43 23.0
1975	" . . .	7.6	3 April 13	53 54.4	54.0	16 48 15.8	4 48.4	54 48.4	43 27.4
1976	" . . .	7.8	3 April 16	53 54.5	54.0	16 48 16.9	4 48.5	54 48.5	43 28.4
1977	" . . .	7.6	5 April 11	54 2.4	46.7	16 47 32.4	4 9.2	54 49.1	43 23.2
1978	21 Leonis Minoris		3 April 26	54 36.2	58.8	36 17 46.6	4 56.1	9 55 35.0	+36 12 50.5
1979	" . . .		3 April 28	54 36.4	58.9	36 17 42.1	4 5[illegible].2	55 35.3	12 45.9
1980	" . . .	5	3 April 29	54 36.6	58.9	36 17 44.1	4 56.3	55 35.5	12 47.8
1981	Lalande 19724 .	8	3 April 19	54 58.2	53.4	13 49 57.9	4 48.4	9 55 51.6	+13 45 9.5
1982	" . . .	8	5 April 26	55 5.1	46.4	13 49 17.5	4 9.9	55 51.5	45 7.6
1983*	30 Leonis η		3 Feb. 18	55 30.2	53.9	17 48 45.5	4 47.3	9 56 24.1	+17 43 58.2
1984	" . . .		3 Feb. 26	55 30.7	53.9	17 48 44.8	4 47.2	56 24.6	43 57.6
1985	" . . .		3 Mar. 29	55 30.9	54.0	17 48 43.9	4 48.7	56 24.9	43 55.2
1986	" . . .		3 April 2	55 30.6	54.0	17 48 44.8	4 48.8	56 24.6	43 56.0
1987	" . . .		3 April 4	55 30.8	54.0	17 48 46.1	4 49.0	56 24.8	43 57.1
1988	" . . .		3 April 5	55 30.8	54.0	17 48 45.4	4 49.1	56 24.8	43 56.3
1989	" . . .		3 April 8	55 30.1	54.1	17 48 42.8	4 49.3	56 24.2	43 53.5
1990	" . . .		3 April 14	55 30.0	54.1	17 48 45.7	4 49.7	56 24.1	43 56.0
1991*	" . . .		3 April 26	55 29.6	54.3	17 48 44.4	4 50.6	56 23.9	43 53.8
1992	" . . .		3 April 28	55 30.3	54.3	17 48 40.9	4 50.8	56 24.6	43 50.1
1993*	" . . .		3 April 29	55 30.1	54.3	17 48 46.0	4 50.9	56 24.4	43 55.1
1994	" . . .		3 April 30	55 30.1	54.3	17 48 47.9	4 51.0	56 24.4	43 56.9
1995*	" . . .		3 May 2	55 30.4	54.4	17 48 47.0	4 50.9	56 24.8	43 56.1
1996	" . . .		3 May 9	55 29.8	54.4	17 48 44.1	4 51.4	56 24.2	43 52.7
1997	" . . .	3.4	5 April 11	55 37.2	46.9	17 48 5.9	4 10.5	56 24.1	43 55.4
1998	" . . .	3.4	5 Mar. 23	55 37.1	46.7	17 48 5.4	4 9.4	56 23.8	43 56.0
1999*	Lalande 19749 .	8.9	3 April 4	56 39.7	53.1	13 (3)		9 57 32.8	+12(58)
2000	Regulus . . .		3 Feb. 18	56 49.6	52.9	13 1 6.8	4 48.1	9 57 42.5	+12 56 18.7
2001	" . . .		3 Feb. 26	56 49.7	52.9	13 1 8.7	4 47.9	57 42.6	56 20.8
2002	" . . .		3 Mar. 21	56 49.1	52.9	13 1 8.0	4 48.0	57 42.0	56 20.0
2003	" . . .		3 Mar. 29	56 50.8	53.0	13 1 8.2	4 48.4	57 43.8	56 19.8
2004	" . . .		3 April 2	56 49.5	53.0	13 1 4.5	4 48.5	57 42.5	56 16.0
2005	" . . .		3 April 4	56 49.9	53.1	13 1 6.7	4 48.6	57 43.0	56 18.1
2006	" . . .		3 April 5	56 49.6	53.1	13 1 9.9	4 48.7	57 42.7	56 21.2
2007	" . . .		3 April 8	56 49.1	53.1	13 1 7.9	4 48.9	57 42.2	56 19.0
2008*	" . . .		3 April 12	56 49.8	53.1	13 1 7.5	4 49.1	57 42.9	56 18.4
2009	" . . .		3 April 13	56 49.4	53.1	13 1 6.8	4 49.1	57 42.5	56 17.7
2010	" . . .		3 April 14	56 49.4	53.1	13 1 10.6	4 49.2	57 42.5	56 21.4
2011	" . . .		3 April 16	56 49.8	53.1	13 1 8.6	4 49.3	57 42.9	56 19.3
2012	" . . .		3 April 26	56 50.0	53.3	13 1 7.4	4 49.9	57 43.3	56 17.5
2013	" . . .		3 April 28	56 49.5	53.3	13 1 3.8	4 50.0	57 42.8	56 13.8
2014	" . . .		3 April 29	56 49.5	53.3	13 1 9.4	4 50.0	57 42.8	56 19.4
2015	" . . .		3 April 30	56 49.4	53.3	13 1 9.3	4 50.1	57 42.7	56 19.2
2016	" . . .		3 May 2	56 49.3	53.3	13 1 10.3	4 50.2	57 42.6	56 20.1
2017	" . . .		3 May 3	56 49.5	53.3	13 1 9.8	4 50.3	57 42.8	56 19.5
2018	" . . .		3 May 9	56 49.2	53.4	13 1 8.2	4 50.6	57 42.6	56 17.6
2019*	" . . .	1	3 May 16	56 49.5	53.5	13 1 7.0	4 51.0	57 43.0	56 16.0
2020	" . . .	1	3 July 10	56 49.2	53.9	13 1 13.4	4 53.0	57 43.1	56 20.4
2021	" . . .		4 June 16	56 52.3	50.2	13 0 51.5	4 26.0	57 42.5	56 25.5
2022*	" . . .		4 Sept. 26	56 53.0	49.7	13 0 50.0	4 30.1	57 42.7	56 19.9
2023	" . . .	1	5 April 5	56 56.8	45.9	13 0 28.7	4 9.7	57 42.7	56 19.0
2024	" . . .	1	5 April 10	56 56.7	46.0	13 0 29.6	4 10.0	57 42.7	56 19.6
2025	" . . .	1	5 April 11	56 56.8	46.0	13 0 28.5	4 10.0	57 42.8	56 18.5
2026	" . . .	1	5 April 26	56 56.2	46.2	13 0 32.3	4 10.7	57 42.4	56 21.6
2027	Bessel, W.1316,7	7.8	5 Mar. 23	57 28.6	47.3	21 22 40.3	4 11.2	9 58 15.9	+21 18 29.1
2028	435 Mayer .		5 April 11	58		10 38 10.6	4 9.8	9 59	+10 34 0.8
2029	33 Leonis .	7	3 April 2	58 58.9	53.7	16 46 1.2	4 51.1	9 59 52.6	+16 41 10.1
2030	Lalande 19808 .	7.8	5 Mar. 23	9 59 15.2	+ 47.3	+21 45 11.5	− 4 12.4	10 0 2.5	+21 40 59.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2031	Lalande 19808	7.8	5 April 26	9 59 14.8	+ 47.7	+21 45 15.6	— 4 15.0	10 0 2.5	+21 41 0.6
2032	34 Leonis . .	7	3 Feb. 26	59 58.9	53.1	14 25 1.7	4 50.1	10 0 52.0	+14 20 11.6
2033	" . . .	7.8	3 April 2	59 59.0	53.2	14 25 0.5	4 51.2	0 52.2	20 9.3
2034	" . . .	7	3 April 4	59 59.0	53.2	14 25 1.2	4 51.3	0 52.2	20 9.9
2035	" . . .		3 April 5	59 58.8	53.2	14 25 6.0	4 51.3	0 52.0	20 14.7
2036*	" . .		3 April 8	59 58.5	53.2	14 25 0.1	4 51.5	0 51.7	20 8.6
2037*	" . . .		3 April 14	59 58.4	53.3	14 25 5.2	4 51.8	0 51.7	20 13.4
2038	" . . .	7	3 April 16	59 58.5	53.3	14 25 5.3	4 51.9	0 51.8	20 13.4
2039	" . . .	7.8	3 April 29	9 59 58.3	53.5	+14 25 5.0	4 52.8	0 51.8	20 12.2
2040	18 Sextantis . .		3 Feb. 18	10 0 10.0	49.0	— 7 21 20.8	4 50.5	10 0 59.0	— 7 26 11.3
2041	Lalande 19837 .	7	5 April 10	0 30.6	48.9	+29 17 42.1	4 16.7	10 1 19.5	+29 13 25.4
2042	" . .	7	5 April 11	0 30.2	48.9	29 17 43.9	4 16.8	1 19.1	13 27.1
2043	Lalande 19865 .	6.7	5 April 5	1 41.2	48.5	28 11 34.0	4 16.6	10 2 29.7	+28 7 17.4
2044	" . .	6.7	5 April 10	1 42.0	48.6	28 11 29.5	4 17.1	2 30.6	7 12.4
2045	437 Mayer . .	7	3 April 19	2 33.2	54.8	22 14 28.4	4 56.3	10 3 28.0	+22 9 32.1
2046	" . . .	7	5 Mar. 23	2 40.7	47.3	22 13 49.4	4 14.5	3 28.0	9 34.9
2047	" . . .	7	5 April 11	2 40.2	47.4	22 13 47.8	4 16.0	3 27.6	9 31.8
2048	22 Leonis Minoris		3 April 26	2 37.7	57.3	32 32 18.8	5 0.4	10 3 35.0	+32 27 18.4
2049	" . . .	6.7	3 April 28	2 38.8	57.3	32 32 16.9	5 0.6	3 36.1	27 16.3
2050	438 Mayer . .		3 Feb. 26	2 46.2	53.6	17 12 21.3	4 52.2	10 3 39.8	+17 7 29.1
2051	"	7	3 Mar. 29	2 46.7	53.6	17 12 26.2	4 54.5	3 40.3	7 31.7
2052	" . . .	7.8	3 April 2	2 46.5	53.6	17 12 22.6	4 53.7	3 40.1	7 28.9
2053	" . . .	8	3 April 14	2 46.1	53.8	17 12 25.4	4 54.5	3 39.9	7 30.9
2054	" . . .	8	3 April 16	2 46.4	53.8	17 12 25.4	4 54.7	3 40.2	7 30.7
2055	23 Leonis Minoris		3 April 26	3 53.8	56.7	30 23 9.3	5 0.5	10 4 50.5	+30 18 8.8
2056	" . . .	5.6	3 April 28	3 54.3	56.7	30 23 3.9	5 0.6	4 51.0	18 3.3
2057	33 Ursæ Majoris λ		3 April 8	3 59.0	60.1	43 59 28.0	5 2.4	10 4 59.1	+43 54 25.6
2058	" . .		3 April 13	3 58.7	60.2	43 59 29.4	5 3.1	4 58.9	54 26.3
2059	" . .		3 April 30	3 59.0	60.5	43 59 33.3	5 5.2	4 59.5	54 28.1
2060	24 Leonis Minoris	6	3 April 28	(4)		29 45 39.5	5 0.7	10 (5)	+29 40 38.8
2061	" . . .	7.8	5 April 5	4 17.0	48.7	29 45 5.9	4 18.5	5 5.7	40 47.4
2062	" . . .	7	5 April 10	4 17.0	48.8	29 45 5.4	4 19.0	5 5.8	40 46.4
2063	439 Mayer . .	8	3 April 14	4 27.5	54.0	18 48 45.5	4 56.1	10 5 21.5	+18 43 49.4
2064*	" . . .		3 April 19	4 26.8	54.1	18 48 47.6	4 56.5	5 20.9	43 51.1
2065	" . . .	6	5 April 26	4 34.2	47.0	18 48 7.7	4 17.2	5 21.2	43 50.5
2066	35 Leonis . .	7	3 Feb. 26	4 30.7	55.0	24 34		10 5 25.7	+24 29
2067	" . . .		3 April 4	4 31.0	55.1	24 34 26.5	4 57.0	5 26.1	29 29.5
2068	" . . .		3 April 5	4 31.4	55.1	24 34 23.3	4 57.1	5 26.5	29 26.2
2069	" . . .		3 April 29	4 30.8	55.4	24 34 28.0	4 59.2	5 26.2	29 28.8
2070	36 Leonis ζ		3 Feb. 26	4 37.0	54.9	24 29 24.9	4 54.0	10 5 31.9	+24 24 30.9
2071	" . . .		3 Mar. 29	4 37.5	55.0	24 29 26.1	4 56.4	5 32.5	24 29.7
2072	" . . .		3 April 2	4 36.8	55.0	24 29 24.3	4 56.8	5 31.8	24 27.5
2073	" . . .		3 April 4	4 36.9	55.1	24 29 26.5	4 57.0	5 32.0	24 29.5
2074	" . . .		3 April 5	4 37.5	55.1	24 29 30.3	4 57.0	5 32.6	24 33.3
2075	" . . .		3 April 29	4 36.5	55.4	24 29 31.1	4 59.3	5 31.9	24 31.8
2076	" . . .		3 May 3	4 36.9	55.4	24 29 28.8	4 59.5	5 32.3	24 29.3
2077	" . . .		3 May 16	4 36.4	55.6	24 29 29.0	5 0.3	5 32.0	24 28.7
2078	37 Leonis . .		3 April 12	5 2.5	53.2	14 48 6.5	4 55.3	10 5 55.7	+14 43 11.2
2079	39 Leonis . .		3 April 8	5 17.5	55.0	24 11 14.5	4 57.7	10 6 12.5	+24 6 16.8
2080*	" . . .		3 April 16	5 18.3	55.1	24 11 16.8	4 58.4	6 13.4	6 18.4
2081*	" . . .	6.7	5 Mar. 23	5 25.1	47.5	24 10 35.8	4 16.4	6 12.6	6 19.4
2082	Lalande 19973–5	8	3 April 12	5 51.7	54.4	21 5 15.2	4 57.6	10 6 46.1	+21 0 17.6
2083	Bessel, W.201 .	7	3 April 26	5 55.9	56.1	28 29 35.6	5 1.2	10 6 52.0	+28 24 34.4
2084	" . . .	7	5 April 5	6 3.8	48.4	28 28 53.4	4 19.1	6 52.2	24 34.3
2085	" . . .	7	5 April 10	6 5.1	48.4	28 28 54.4	4 19.6	6 53.5	24 34.8
2086	" . . .	7	5 April 11	6 3.9	48.4	+28 28 53.5	4 19.7	6 52.3	24 33.8
2087	22 Sextantis . .		3 Feb. 18	6 52.9	49.2	— 6 59 30.4	4 55.1	10 7 42.1	— 7 4 25.5
2088	441 Mayer . .		3 April 14	6 49.9	53.0	+13 42 0.6	4 56.2	10 7 42.9	+13 37 4.4
2089	" . . .	7.8	5 April 26	(6)		13 41 27.3	4 16.8	(7)	37 8.5
2090	40 Leonis . .		3 April 8	10 7 55.3	+ 54.2	+20 33 53.2	— 4 58.4	10 8 49.5	+20 28 54.8

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2091	40 Leonis . .		3 April 12	10 7 55.7	+ 54.2	+20 33 47.2	− 4 58.8	10 8 49.9	+20 28 48.4
2092	" . . .	7	5 April 11	8 2.3	47.0	20 33 9.4	4 18.5	8 49.3	28 50.9
2093	41 Leonis γ		3 Feb. 26	8 1.2	54.1	20 55 51.3	4 55.8	10 8 55.3	+20 50 55.5
2094	" . . .		3 Mar. 29	8 1.1	54.2	20 55 53.6	4 57.8	8 55.3	50 55.8
2095	" . . .		3 April 2	8 1.0	54.2	20 55 49.5	4 58.0	8 55.2	50 51.5
2096*	" . . .		3 April 4	8 1.1	54.2	20 55 51.5	4 58.2	8 55.3	50 53.3
2097	" . . .		3 April 5	8 1.1	54.2	20 55 56.4	4 58.3	8 55.3	50 58.1
2098	" . . .		3 April 13	8 0.8	54.3	20 55 48.0	4 58.9	8 55.1	50 49.1
2099	" . . .		3 April 16	8 0.7	54.4	20 55 52.3	4 59.2	8 55.1	50 53.1
2100	" . . .		3 April 19	8 0.8	54.4	20 55 53.7	4 59.5	8 55.2	50 54.2
2101	" . . .		3 April 29	8 0.6	54.5	20 55 54.1	5 0.2	8 55.1	50 53.9
2102	" . . .		3 May 3	8 0.9	54.6	20 55 53.3	5 0.6	8 55.5	50 52.7
2103	" . . .		3 May 9	8 0.2	54.6	20 55 53.4	5 1.0	8 54.8	50 52.4
2104*	" . . .		3 May 16	8 0.7	54.7	20 55 52.1	5 1.3	8 55.4	50 50.8
2105	" . . .	3	5 Mar. 23	8 8.0	46.9	20 55 14.9	4 17.2	8 54.9	50 57.7
2106	25 Leonis Minoris		3 April 26	8 1.4	59.7	42 56 4.2	5 7.1	10 9 1.1	+42 50 57.1
2107	" . . .		3 April 28	8 2.2	59.8	42 55 59.7	5 7.3	9 2.0	50 52.4
2108	Anonyma . .	8	5 April 5	8 36.6	48.9	31 44 7.6	4 21.4	10 9 25.5	+31 39 46.2
2109	" . . .	7.8	5 April 10	8 36.9	49.0	31 44 7.3	4 22.0	9 25.9	39 45.3
2110	Lalande 20057,8	7	3 April 12	8 57.0	54.2	20 37 17.3	4 59.4	10 9 51.2	+20 32 17.9
2111	" . . .	8.9	5 April 11	9 3.8	46.9	20 36 39.1	4 19.1	9 50.7	32 20.0
2112	1433 Bradley .	6.5	3 April 28	9 14.7	59.6	42 19 33.2	5 7.3	10 10 14.3	+42 14 25.0
2113	34 Ursæ Maj. μ		3 April 28	9 22.4	59.6	42 35 8.2	5 8.1	10 10 22.0	+42 30 0.1
2114	42 Leonis . .	7	3 Feb. 26	10 11.0	53.1	16 3 37.3	4 56.9	10 11 4.1	+15 58 40.4
2115	" . . .		3 Mar. 29	10 11.1	53.2	16 3 45.3	4 58.0	11 4.3	58 47.3
2116*	" . . .		3 April 3	10 10.8	53.2	16 3 39.3	4 58.2	11 4.0	58 41.0
2117	" . . .		3 April 4	10 10.7	53.2	16 3 41.3	4 58.3	11 3.9	58 43.0
2118	" . . .		8 April 5	10 10.7	53.2	16 3 45.2	4 58.4	11 3.9	58 46.8
2119	" . . .	6	3 May 2	10 10.2	53.5	16 3 43.6	5 0.2	11 3.7	58 43.4
2120	" . . .	7	5 Mar. 23	10 18.3	46.0	16 3 4.6	4 17.4	11 4.3	58 47.2
2121	26 Leonis Minoris	7.8	5 April 5	10 38.0	49.7	36 17 49.2	4 23.7	10 11 27.7	+36 13 25.5
2122	" . . .	8	5 April 10	10 38.1	49.8	36 17 49.6	4 24.4	11 27.9	13 25.2
2123	" . . .	7	5 April 11	10 37.9	49.8	36 17 47.6	4 24.5	11 27.7	13 23.1
2124	" . . .	7	5 April 26	10 38.3	50.0	36 17 46.9	4 26.3	11 28.3	13 20.6
2125	27 Leonis Minoris	6	3 April 8	10 34.9	57.1	34 59 49.8	5 4.0	10 11 32.0	+34 54 45.8
2126	445 Mayer . .	7.8	3 April 14	10 48.4	52.3	10 2 56.0	4 57.6	10 11 40.7	+ 9 57 58.4
2127	" . . .		3 April 19	10 48.0	52.3	10 2 57.7	4 57.9	11 40.3	57 59.8
2128	43 Leonis . .	7	3 April 4	11 40.6	51.7	7 38 9.7	4 57.2	10 12 32.3	+ 7 33 12.5
2129	" . . .	6	3 April 29	11 39.6	52.0	7 38 9.7	4 58.2	12 31.6	33 11.5
2130	28 Leonis Minoris	6	3 April 8	11 39.4	57.0	34 48 34.1	5 4.7	10 12 36.4	+34 43 29.4
2131	" . . .		3 April 13	11 38.9	57.0	34 48 35.9	5 5.3	12 35.9	43 30.6
2132	" . . .		3 April 16	11 40.0	57.1	34 48 43.2	5 5.6	12 37.1	43 37.6
2133	" . . .	6.5	5 April 26	11 47.4	49.6	34 47 59.9	4 26.4	12 37.0	43 33.5
2134	446 Mayer . .	7.8	3 Mar. 29	12 52.4	52.4	11 40 45.1	4 58.7	10 13 44.8	+11 35 46.4
2135	" . . .		3 April 19	12 51.2	52.6	11 40 40.5	4 59.7	13 43.8	35 40.8
2136	29 Leonis Minoris		3 April 26	13 12.9	57.6	36 31 29.9	5 8.3	10 14 10.5	+36 26 21.6
2137	" . . .		3 April 27	13 13.2	57.6	36 31 27.4	5 8.4	14 10.8	26 19.0
2138	" . . .	7	5 April 5	13 20.2	49.6	36 30 49.7	4 25.1	14 9.8	26 24.6
2139	" . . .	7	5 April 10	13 20.3	49.7	36 30 48.8	4 25.7	14 10.0	26 23.1
2140	" . . .	6.7	5 April 11	13 20.5	49.7	36 30 46.8	4 25.8	14 10.2	26 21.0
2141	Lalande 20178 .	7	3 April 28	13 17.0	56.9	33 51 22.9	5 7.7	10 14 13.9	+33 46 15.2
2142	" . . .	7.8	5 April 26	13 24.7	49.3	33 50 47.0	4 27.0	14 14.0	46 20.0
2143	30 Leonis Minoris	4.5	3 April 8	13 27.2	56.9	34 53 39.8	5 5.7	10 14 24.1	+34 48 34.1
2144*	" . . .	5	3 April 13	13 27.4	57.0	34 53 39.2	5 6.4	14 24.4	48 32.8
2145	" . . .	6	3 April 16	13 27.6	57.0	34 53 44.3	5 6.8	14 24.6	48 37.5
2146	" . . .		3 April 30	13 27.5	57.2	34 53 43.6	5 8.4	14 24.7	48 35.2
2147	44 Leonis . .	6.7	3 Feb. 26	13 50.0	52.0	9 52 49.5	4 58.9	10 14 42.0	+ 9 47 50.6
2148	" . . .		3 April 2	13 49.6	52.1	9 52 43.0	4 59.0	14 41.7	47 44.0
2149	" . . .		3 April 3	13 49.7	52.1	9 52 40.4	4 59.0	14 41.8	47 41.4
2150	" . . .		3 April 4	10 13 49.4	+ 52.1	+ 9 52 47.6	− 4 59.0	10 14 41.5	+ 9 47 48.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2151	44 Leonis		3 April 5	10 13 49.8	+ 52.1	+ 9 52 49.5	− 4 59.0	10 14 41.9	+ 9 47 50.5
2152	"		3 April 14	13 50.2	52.2	9 52 48.6	4 59.5	14 42.4	47 49.1
2153*	"		3 April 25	13 49.0	52.3	9 52 42.0	5 0.8	14 41.3	47 41.2
2154	"		3 April 29	13 48.5	52.3	9 52 43.1	5 0.3	14 40.8	47 42.8
2155	"		3 May 2	13 48.9	52.4	9 52 46.9	5 0.4	14 41.3	47 46.5
2156	Piazzi 67	6.7	3 Feb. 26	14 10.5	52.0	9 52 8.7	4 59.1	10 15 2.5	+ 9 47 9.6
2157	"	8.9	3 April 2	14 9.1	52.0	9 52 5.2	4 59.2	15 1.1	47 6.0
2158	"	8.9	3 April 3	14 10.7	52.1	9 52 3.4	4 59.2	15 2.8	47 4.2
2159	"	7.8	3 April 29	14 9.0	52.3	+ 9 52		15 1.3	47
2160	1449 Bradley	7.8	3 Feb. 18	15 26.1	49.6	− 5 19 49.6	5 0.6	10 16 15.7	− 5 24 50.2
2161	"	7	3 April 19	15 25.5	49.7	− 5 19 50.0	4 55.4	16 15.2	24 45.4
2162	31 Leonis Minoris		3 April 26	15 18.1	57.7	+37 46 50.2	5 10.0	10 16 15.8	+37 43 40.2
2163	"	6.5	3 April 30	15 18.8	57.8	37 48 52.5	5 10.3	16 16.6	43 42.2
2164	"	5.6	3 May 1	15 19.1	57.8	37 48 51.2	5 10.4	16 16.9	43 40.8
2165	45 Leonis	7	3 Mar. 29	16 13.6	52.2	10 51 40.1	5 0.5	10 17 5.8	+10 46 39.6
2166	"		3 April 3	16 11.4	52.2	10 51 36.8	5 0.7	17 3.6	46 36.1
2167*	"		3 April 5	16 13.1	52.2	10 51 41.5	5 0.8	17 5.3	46 40.7
2168	"		3 April 29	16 11.7	52.4	10 51 40.1	5 2.0	17 4.1	46 38.1
2169	"	6	5 April 26	16 19.6	45.4	10 50 56.8	4 21.0	17 5.0	46 35.8
2170*	Lalande 20278,9	7.8	3 April 13	16 18.4	51.3	4 39 44.8	4 59.4	10 17 9.7	+ 4 34 45.4
2171	"	8	5 April 11	16 25.5	44.4	4 39 1.1	4 18.6	17 9.9	34 42.5
2172	Piazzi 79	6	5 Mar. 23	16 55.2	48.2	30 49 9.9	4 23.8	10 17 43.4	+30 44 46.1
2173	"	6.7	5 April 10	16 55.3	48.4	30 49 14.9	4 26.0	17 43.7	44 48.9
2174	Lalande 20294	9.8	5 April 11	16 59.6	44.3	4 24 11.9	4 18.9	10 17 43.9	+ 4 19 53.0
2175*	449 Mayer	6	3 April 12	17 13.2	53.0	15 26 41.1	5 3.0	10 18 6.2	+15 21 38.1
2176*	"		3 April 25	17 12.8	53.1	15 26 45.2	5 3.8	18 5.9	21 41.4
2177	32 Leonis Minoris		3 April 26	17 24.9	58.1	40 1 52.1	5 11.8	10 18 23.0	+39 56 40.3
2178	"	6.7	3 April 27	17 25.5	58.1	40 1 51.6	5 12.0	18 23.6	56 39.6
2179	450 Mayer	7.8	3 May 1	17 42.9	52.5	11 15 30.3	5 3.1	10 18 35.4	+11 10 27.2
2180	"	7.8	3 May 2	17 42.8	52.5	11 15 31.9	5 3.2	18 35.3	10 28.7
2181	Lalande 20339	7	3 April 8	18 4.1	57.2	37 23 1.0	5 9.0	10 19 1.3	+37 17 52.0
2182	"	6	3 April 28	18 4.1	57.4	37 23 0.8	5 11.7	19 1.5	17 49.1
2183	"	6	3 April 30	18 4.3	57.5	37 23 0.9	5 11.8	19 1.8	17 49.1
2184	Lalande 20345	7	3 April 27	18 21.5	58.1	40 7 54.3	5 12.6	10 19 19.6	+40 2 41.7
2185	"	7.8	5 April 10	18 29.6	50.1	40 7 9.8	4 29.3	19 19.7	2 40.5
2186	30 Sextantis	6.7	3 Feb. 18	19 13.2	50.5	0 28 7.0	5 2.7	10 20 3.7	+ 0 23 4.3
2187	"	6	3 April 19	19 14.0	50.6	0 28 3.7	5 0.2	20 4.6	23 3.5
2188	31 Sextantis	7	3 April 13	19 19.5	51.0	3 15 26.3	5 0.9	10 20 10.5	+ 3 10 25.4
2189	"	7	3 April 29	19 19.4	51.2	3 15 25.8	5 1.3	20 10.6	10 24.5
2190	"	7	5 April 11	(19)	44.2	3 14 39.5	4 20.0	(20)	10 19.5
2191	"	7	5 April 26	19 26.4	44.3	3 14 46.7	4 20.2	20 10.7	10 26.5
2192	33 Leonis Minoris	5	3 April 16	19 31.8	56.3	33 29 16.4	5 9.7	10 20 28.1	+33 24 6.7
2193	"	4.5	5 April 29	19 39.0	49.0	33 28 41.4	4 30.2	20 28.0	24 11.2
2194	Groombridge 1653	7.8	3 April 27	20 28.8	58.0	40 20 7.1	5 13.8	10 21 26.8	+40 14 53.3
2195	"	7.8	5 April 10	20 36.4	50.0	40 19 23.6	4 30.4	21 26.4	14 53.2
2196	46 Leonis i		3 April 2	20 37.8	52.8	15 14 35.3	5 4.2	10 21 30.6	+15 9 31.1
2197	"		3 April 3	20 37.6	52.8	15 14 33.0	5 4.2	21 30.4	9 28.8
2198	"		3 April 5	20 37.4	52.8	15 14 40.3	5 4.3	21 30.2	9 36.0
2199	"		3 April 12	20 37.5	52.9	15 14 33.4	5 4.8	21 30.4	9 28.6
2200*	"		3 April 14	20 37.7	52.9	15 14 38.1	5 4.9	21 30.6	9 33.2
2201	"		3 April 25	20 37.2	53.0	15 14 33.6	5 5.7	21 30.2	9 27.9
2202*	33 (Hev.)Urs. Maj	5.6	3 April 28	20 33.4	58.2	41 32 12.2	5 14.7	10 21 31.6	+41 26 57.5
2203	"	5.6	3 April 30	20 33.2	58.3	41 32 17.5	5 14.5	21 31.5	27 3.0
2204	34 Leonis Minoris	5	3 April 8	21 5.1	56.6	36 6 0.4	5 10.3	10 22 1.7	+36 0 50.1
2205	"		3 April 26	21 5.0	56.9	36 6 6.2	5 12.7	22 1.9	0 53.5
2206	"	5	5 Mar. 23	21 13.0	48.9	36 5 23.0	4 26.9	22 1.9	0 56.1
2207	47 Leonis ρ		3 Feb. 18	21 24.0	52.0	10 24 55.9	5 3.6	10 22 16.0	+10 19 52.3
2208	"		3 Feb. 26	21 24.3	52.0	10 24 55.3	5 3.2	22 18.3	19 52.1
2209	"		3 Mar. 29	21 25.0	52.0	10 24 59.5	5 3.3	22 17.0	19 56.2
2210	"		3 April 5	10 21 24.6	+ 52.0	+10 25 0.2	− 5 3.6	10 22 16.6	+10 19 56.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2211	47 Leonis ρ		3 May 1	10 21 23.4	+ 52.3	+10 24 53.1	− 5 5.0	10 22 15.7	+10 19 48.1
2212*	"		3 May 9	21 22.9	52.4	10 24 55.1	5 5.4	22 15.3	19 49.7
2213	"	4	5 April 29	21 28.8	45.3	10 24 16.2	4 23.6	22 14.1	19 52.6
2214*	Lalande 20436	11	3 April 19	22 3.6	51.8	8 11 38.8	5 4.0	10 22 55.4	+ 8 6 34.8
2215	Lalande 20437	8.9	5 April 26	22 11.0	46.8	21 24 22.4	4 27.4	10 22 57.8	+21 19 55.0
2216	Lalande 20457,8	7	5 April 11	22 49.4	47.8	29 4 8.4	4 28.4	10 23 37.2	+28 59 40.0
2217	48 Leonis		3 April 3	23 29.7	51.6	8 3 45.7	5 4.2	10 24 21.3	+ 7 58 41.5
2218	"		3 April 12	23 29.9	51.7	8 3 48.3	5 4.4	24 21.6	58 43.9
2219	"		3 April 14	23 29.6	51.7	8 3 49.1	5 4.6	24 21.3	58 44.5
2220	"		3 April 19	23 30.1	51.8	8 3 48.6	5 4.7	24 21.9	58 43.9
2221	"	5.6	3 April 29	23 29.5	51.9	8 3 47.8	5 5.3	24 21.4	58 42.5
2222	"	6	5 April 29	23 36.2	44.9	8 3 4.4	4 23.9	24 21.1	58 40.5
2223	49 Leonis		3 Mar. 29	23 40.1	51.8	9 45 57.6	5 4.5	10 24 31.9	+ 9 40 53.1
2224*	"		3 April 2	23 38.6	51.9	9 45 47.4	5 4.6	24 30.5	40 42.8
2225	35 Leonis Minoris	5.6	3 April 8	23 53.1	56.7	37 26 45.8	5 12.1	10 24 49.8	+37 21 33.7
2226	"		3 April 16	23 52.7	56.8	37 26 50.0	5 13.2	24 49.5	21 36.8
2227	"		3 April 27	23 53.1	57.0	37 26 50.5	5 14.7	24 50.1	21 35.8
2228*	Lalande 20484	7.8	3 April 13	23 55.8	51.0	3 18 58.9	5 3.5	10 24 46.8	+ 3 13 55.4
2229	"	7	3 April 25	23 55.9	51.1	3 19 5.6	5 3.8	24 47.0	14 1.8
2230	"	7	3 May 1	23 56.2	51.2	3 19 5.3	5 4.0	24 47.4	14 1.3
2231	"	7	3 May 2	23 55.3	51.2	3 19 5.6	5 4.1	24 46.5	14 1.5
2232	Johnson 2525	8	3 April 28	24 8.1	59.7	47 40 11.4	5 18.1	10 25 7.8	+47 34 53.3
2233	"	7.8	3 April 30	24 8.3	59.7	47 40 14.4	5 18.3	25 8.0	34 56.1
2234	Piazzi 116	9	3 April 3	24 45.4	51.6	8 9 26.1	5 4.8	10 25 37.0	+ 8 4 21.3
2235	"	8	3 April 29	24 45.4	51.8	8 9 26.1	5 6.0	25 37.2	4 20.1
2236	"	8.9	5 April 29	24 51.6	44.9	8 8 46.6	4 24.6	25 36.5	4 22.0
2237	36 Leonis Minoris		3 April 26	25 33.0	56.4	35 11 56.9	5 14.8	10 26 29.4	+35 6 42.1
2238	"		3 April 27	25 32.7	56.4	35 11 56.9	5 14.9	26 29.1	6 42.0
2239	"	7.6	5 April 26	25 40.4	48.9	35 11 20.9	4 33.3	26 29.3	6 47.6
2240	455 Mayer	8	3 April 2	26 8.6	53.1	18 23 57.5	5 7.9	10 27 1.7	+18 18 49.6
2241	"	9	3 April 14	26 7.9	53.2	18 23 57.7	5 8.8	27 1.1	18 48.9
2242	"	9	5 April 10	26 15.6	46.0	18 23 18.2	4 27.0	27 1.6	18 51.2
2243	37 Leonis Minoris		3 April 26	26 29.5	55.9	33 5 56.3	5 14.7	10 27 25.4	+33 0 41.6
2244	"		3 May 9	26 29.4	56.1	33 5 54.7	5 15.9	27 25.5	0 38.8
2245	"	5.6	5 April 11	26 37.0	48.2	33 5 11.4	4 31.2	27 25.2	0 40.2
2246	38 Leonis Minoris	6	3 April 8	26 41.6	56.9	39 2 10.3	5 14.0	10 27 38.5	+38 56 56.3
2247	Lalande 20568	8.9	3 April 25	27 10.7	52.8	15 8 44.7	5 9.1	10 28 3.5	+15 3 35.6
2248	Arg. Z., Oel. 11017	7	3 April 28	27 8.7	59.7	47 58 1.7	5 18.7	10 28 8.4	+47 52 43.0
2249	"	7	3 April 30	27 9.0	59.5	47 58 12.5	5 19.9	28 8.5	52 52.6
2250	50 Leonis		3 Feb. 26	27 16.8	52.9	17 14 58.9	5 6.7	10 28 9.7	+17 9 52.2
2251	"		3 April 2	27 16.8	52.9	17 14 56.9	5 8.2	28 9.7	9 48.7
2252	"	6.7	3 April 3	27 17.0	52.9	17 15 0.9	5 8.2	28 9.9	9 52.7
2253	"		3 April 5	27 17.0	52.9	17 15 3.4	5 8.4	28 9.9	9 55.0
2254	"	7.8	3 April 14	27 16.9	53.0	17 15 4.6	5 9.1	28 9.9	9 55.5
2255	"	7	3 April 16	27 18.2	53.0	17 15 3.5	5 9.2	28 11.2	9 54.3
2256	"	7	3 May 1	27 17.0	53.2	17 15 9.8	5 10.4	28 10.2	9 59.4
2257	"	7	3 May 2	27 16.4	53.2	17 15 4.1	5 10.5	28 9.6	9 53.6
2258	"	7	5 April 26	27 23.9	46.0	17 14 26.8	4 28.5	28 9.9	9 58.3
2259	"	7.8	5 April 29	27 23.4	46.0	17 14 23.8	4 29.1	28 9.4	9 54.7
2260	Lalande 20575	7.8	3 April 29	27 21.4	57.1	+38 58 6.9	5 17.2	10 28 18.5	+38 52 49.7
2261	2 Hydræ ϕ^3		3 Feb. 18	28 2.8	48.1	−15 45 22.2	5 8.8	10 28 50.9	−15 50 31.0
2262	Lalande 20589	8.9	3 April 3	27 58.3	52.9	+17 8 28.9	5 8.6	10 28 51.2	+17 3 20.3
2263	457 Mayer	7	3 April 13	28 20.9	51.9	9 57 57.5	5 7.6	10 29 12.8	+ 9 52 49.9
2264	39 Leonis Minoris	7.8	5 April 11	28 27.1	47.4	28 38 17.9	4 30.9	10 29 14.5	+28 33 47.0
2265	Anonyma	10	3 April 2	29 17.9	53.2	19 59 9.2	5 10.0	10 30 11.1	+19 53 59.2
2266	"	10	3 April 19	29 18.4	53.4	19 59 9.9	5 11.3	30 11.8	53 58.6
2267	Flamsteed, B.1519	4.5	3 April 8	30 1.1	55.4	32 49 34.2	5 14.1	10 30 56.5	+32 44 20.1
2268	"	5	3 April 26	30 1.2	55.6	32 49 39.7	5 16.3	30 56.8	44 23.4
2269	"		3 April 27	30 1.6	55.6	32 49 37.4	5 16.4	30 57.2	44 21.0
2270	"	6	3 April 28	10 30 1.4	+ 55.6	+32 49 36.7	− 5 16.6	10 30 57.0	+32 44 20.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2271	Flamsteed, B.1519	6	5 April 10	10 30 8.5	+ 48.0	+32 49 0.5	— 4 32.6	10 30 56.5	+32 44 27.9
2272	" . . .	6	5 April 26	30 9.0	48.2	32 49 0.8	4 34.6	30 57.2	44 26.2
2273*	" . . .	6.5	5 April 29	30 8.4	48.2	32 49 2.0	4 34.9	30 56.6	44 27.1
2274	Piazzi 132 . .	10	3 Feb. 26	30 5.4	52.5	15 6 14.6	5 8.0	10 30 57.9	+15 1 6.6
2275	" . . .	8	3 April 29	30 5.1	52.8	15 6 18.6	5 11.0	30 57.9	1 7.6
2276	36 (Hev.) Ur. Maj.	6	3 April 30	30 46.5	58.9	47 20 29.2	5 21.6	10 31 45.4	+47 15 7.6
2277	" . . .	6.5	3 May 1	30 46.4	58.9	47 20 28.3	5 21.6	31 45.3	15 6.7
2278	Bessel, W.618 .	7	3 April 13	30 52.3	52.0	11 29 5.3	5 9.4	10 31 44.3	+11 23 55.9
2279	40 Leonis Minoris		3 April 25	31 6.9	54.6	27 27 33.9	5 15.1	10 32 1.5	+27 22 18.8
2280	" . . .	6.5	3 May 2	31 6.6	54.7	27 27 36.0	5 15.8	32 1.3	22 20.2
2281	" . . .	6	5 April 10	31 14.5	47.1	27 26 51.4	4 31.6	32 1.6	22 19.8
2282	Bessel, W.624 .		3 April 12	31 14.3	50.7	1 59 22.0	5 7.1	10 32 5.0	+ 1 54 14.9
2283*	Piazzi 137 . .	7	3 April 30	31 14.6	58.9	47 20 44.7	5 21.9	10 32 13.5	+47 15 22.8
2284	" . . .	7	3 May 1	31 14.7	58.9	47 20 40.3	5 22.0	32 13.6	15 18.3
2285	34 Sextantis . .	6.7	5 Mar. 23	31 33.5	44.1	4 41 53.3	4 26.0	10 32 17.6	+ 4 37 27.3
2286	41 Leonis Minoris		3 May 9	31 36.3	54.2	24 19 7.6	5 15.5	10 32 30.5	+24 13 52.1
2287	35 Sextantis . .		3 April 5	32 6.6	51.2	5 52 47.0	5 8.3	10 32 57.8	+ 5 47 38.7
2288	" . . .	6	3 April 14	32 6.9	51.3	5 52 45.1	5 8.6	32 58.2	47 36.5
2289	Lalande 20693 .	7.8	3 April 2	32 8.9	53.0	19 26 45.3	5 11.2	10 33 1.9	+19 21 34.1
2290*	" . . .	7.8	3 April 3	32 9.0	53.1	19 26 47.4	5 11.2	33 2.1	21 36.2
2291	" . . .	8	3 April 16	32 9.1	53.2	19 26 49.5	5 12.3	33 2.3	21 37.2
2292	Groombridge 1685	7	5 April 11	32 57.9	49.5	42 25 59.3	4 36.4	10 33 47.4	+42 21 22.9
2293	42 Leonis Minoris	5	3 April 8	33 47.5	55.0	31 49 13.2	5 15.6	10 34 42.5	+31 43 57.6
2294	" . . .	5	3 April 25	33 47.5	55.2	31 49 18.8	5 17.8	34 42.7	44 1.0
2295	" . . .	6.7	3 April 27	33 47.9	55.2	31 49 13.2	5 18.0	34 43.1	43 55.2
2296	" . . .	6	3 April 28	33 47.7	55.2	31 49 14.4	5 16.8	34 42.9	43 57.6
2297	" . . .	5	3 May 2	33 47.3	55.3	31 49 16.3	5 18.5	34 42.6	43 57.8
2298	Piazzi 146 . .	7	3 April 28	33 49.7	55.2	31 45 46.4	5 18.2	10 34 44.9	+31 40 28.2
2299	" . . .	8	3 May 2	33 49.3	55.3	31 45 56.8	5 18.5	34 44.6	40 38.3
2300	459 Mayer . .	8.9	3 April 14	34 14.4	51.6	8 39 0.1	5 10.4	10 35 6.0	+ 8 33 49.7
2301	Bessel, W.672 .	8	3 April 12	34 20.9	50.7	2 8 36.3	5 8.6	10 35 11.6	+ 2 3 27.7
2302	" . . .	8.9	5 Mar. 23	34 28.6	43.8	2 8 3.4	4 26.8	35 12.4	3 36.6
2303	Lalande 20741 .		3 April 28	34 22.0	55.2	31 48 49.4	5 18.5	10 35 17.2	+31 43 30.9
2304	51 Leonis m		3 April 2	34 43.9	53.0	20 1 44.3	5 12.6	10 35 36.9	+19 56 31.7
2305	" . . .		3 April 3	34 43.3	53.1	20 1 42.9	5 12.6	35 36.4	56 30.3
2306	" . . .	7	3 April 16	34 42.9	53.2	20 1 48.2	5 13.7	35 36.1	56 34.5
2307	" . . .		3 May 3	34 43.3	53.4	20 1 49.0	5 15.2	35 36.7	56 33.8
2308	" . . .	6	5 April 10	34 50.3	46.0	20 1 4.2	4 31.2	35 36.3	56 33.0
2309	52 Leonis k		3 Feb. 18	34 56.4	52.5	15 20 1.4	5 10.5	10 35 48.9	+15 14 50.9
2310	" . . .		3 Feb. 26	34 57.1	52.4	15 20 1.9	5 10.4	35 49.5	14 51.5
2311	" . . .		3 April 13	34 56.1	52.5	15 20 2.0	5 12.4	35 48.6	14 49.6
2312	" . . .	7	3 April 19	34 56.7	52.5	15 20 2.6	5 12.8	35 49.2	14 49.8
2313	" . . .		3 April 29	34 56.4	52.6	15 20 3.2	5 13.6	35 49.0	14 49.6
2314	Johnson 2558 .	7.8	5 April 11	35 40.1	49.3	42 14 18.6	4 37.4	10 36 29.4	+42 9 41.2
2315*	" . . .	7	5 April 26	35 39.7	49.5	42 14 23.0	4 39.7	36 29.2	9 43.3
2316	" . . .	7	5 April 29	35 40.8	49.6	42 14 22.4	4 39.9	36 30.4	9 42.5
2317	Groombridge 1689	7	3 April 30	35 34.3	56.9	40 53 6.1	5 22.0	10 36 31.2	+40 47 44.1
2318	" . . .	7	3 May 1	35 34.1	56.9	40 53 0.8	5 22.1	36 31.0	47 38.7
2319	Lalande 20778 .	7.8	5 April 29	36 2.1	49.5	42 17 25.4	4 40.1	10 36 51.6	+42 12 45.3
2320	38 Sextantis . .	8.7	3 April 14	36 3.1	51.4	7 29 4.8	5 10.8	10 36 54.5	+ 7 23 54.0
2321	Lalande 20973 .	8.9	3 April 3	36 34.1	52.4	15 20 57.9	5 12.4	10 37 26.5	+15 15 45.5
2322	43 Leonis Minoris		3 April 29	36 58.9	54.8	30 33 35.5	5 19.3	10 37 53.7	+30 28 16.2
2323	Groombridge 1692	8	3 April 30	36 57.2	57.1	42 32 3.4	5 23.1	10 37 54.3	+42 26 40.3
2324	53 Leonis l		3 Feb. 18	37 52.0	51.9	11 41 10.7	5 12.0	10 38 43.9	+11 35 58.7
2325	" . . .		3 Feb. 26	37 52.2	51.9	11 41 14.3	5 11.7	38 44.1	36 2.6
2326	" . . .		3 April 2	37 52.5	51.8	11 41 10.6	5 12.2	38 43.3	35 58.4
2327	" . . .		3 April 3	37 51.8	51.8	11 41 10.3	5 12.2	38 43.6	35 58.1
2328	" . . .		3 April 5	37 52.1	51.8	11 41 14.4	5 12.3	38 43.9	36 2.1
2329	" . . .		3 April 8	37 52.5	51.9	11 41 11.4	5 12.4	38 44.4	35 59.0
2330	" . . .		3 April 13	10 37 52.6	+ 51.9	+11 41 13.1	— 5 12.7	10 38 44.5	+11 36 0.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2331	53 Leonis l		3 May 9	10 37 51.2	+ 52.2	+11 41		10 38 43.4	+11 36
2332	Lalande 20838 .	8	5 Mar. 23	38 19.3	44.0	4 34 14.1	— 4 29.1	10 39 3.3	+ 4 29 45.0
2333	Lalande 20843 .	8	3 May 1	38 28.0	55.2	33 10 20.3	5 21.0	10 39 23.2	+33 4 59.3
2334	" . . .	7.8	3 May 2	38 28.5	55.2	33 10 22.4	5 21.1	39 23.7	5 1.3
2335	Lalande 20847 .	8	3 April 19	38 38.4	54.0	26 47 12.4	5 17.8	10 39 32.4	+26 41 54.6
2336	Lalande 20852 .	6	3 April 16	38 51.2	53.6	24 32 58.1	5 16.9	10 39 44.8	+24 27 41.2
2337	" . . .	6.7	5 April 26	38 59.0	46.6	24 32 18.3	4 35.6	39 45.6	27 42.7
2338	Piazzi 172 . .	8	5 Mar. 23	39 52.3	44.0	4 43 23.9	4 29.4	10 40 36.3	+ 4 38 54.5
2339	Bessel, W.892 .	9	5 April 11	40 7.2	47.6	33 45 52.1	4 36.9	10 40 54.8	+33 41 15.2
2340	Lalande 20903 .	8	3 May 1	40 36.3	55.2	34 8 23.0	5 22.2	10 41 31.5	+34 3 0.8
2341	" . . .	9	5 April 11	40 43.6	47.6	34 7 40.6	4 37.2	41 31.2	3 3.4
2342	45 Leonis Minoris	6	3 April 30	40 55.4	54.4	29 0 40.3	5 20.6	10 41 49.8	+28 55 19.7
2343	Lalande 20919 .	7	5 April 26	41 13.4	44.0	2 9 25.0	4 29.8	10 41 57.4	+ 2 4 55.2
2344	46 Leonis Minoris	4.5	3 April 28	41 9.7	55.3	35 22 46.2	5 22.6	10 42 5.0	+35 17 23.6
2345*	" . . .	5.6	3 May 1	41 9.6	55.4	35 22 51.9	5 22.9	42 5.0	17 29.0
2346	" . . .		3 May 2	41 9.5	55.4	35 22 50.1	5 23.0	42 4.9	17 27.1
2347	45 Ursæ Maj. ω		3 April 29	41 28.1	57.1	44 20 29.5	5 25.5	10 42 25.2	+44 15 4.0
2348	Lalande 20941 .	7.8	3 April 3	41 45.2	53.8	27 21 22.3	5 17.4	10 42 39.0	+27 16 4.9
2349	" . . .	7.8	3 April 19	41 45.6	53.9	27 21 31.1	5 19.4	42 39.5	16 11.7
2350	48 Leonis Minoris	7	3 April 2	42 55.5	53.6	26 38 21.9	5 17.7	10 43 49.1	+26 33 4.2
2351*	" . . .	7	3 April 16	42 54.8	53.7	26 38 25.2	5 19.2	43 48.5	33 6.0
2352	" . . .	7	3 April 19	42 55.4	53.7	26 38 26.3	5 19.6	43 49.1	33 6.7
2353*	47 Leonis Minoris		3 April 28	42 53.6	55.2	35 11 19.7	5 23.3	10 43 48.8	+35 5 56.4
2354	" . . .	6	3 April 30	42 53.6	55.2	35 11 23.3	5 23.4	43 48.8	5 59.9
2355	" . . .	6	3 May 1	42 53.9	55.2	35 11 21.8	5 23.5	43 49.1	5 58.3
2356	464 Mayer . .	7.8	5 April 29	43 38.1	44.5	6 59 7.0	4 32.2	10 44 22.6	+ 6 54 34.8
2357	46 Ursæ Majoris		3 April 29	43 42.4	55.1	34 39 42.6	5 23.5	10 44 37.5	+34 34 19.1
2358	" . . .		3 May 1	43 42.3	55.1	34 39 43.0	5 23.7	44 37.4	34 19.3
2359	" . . .	6	3 May 2	43 42.8	55.1	34 39 40.0	5 23.8	44 37.9	34 16.2
2360	54 Leonis . .	4.5	3 Feb. 26	43 52.2	53.5	25 54 0.7	5 14.5	10 44 45.7	+25 48 46.2
2361	" . . .		3 April 2	43 51.7	53.5	25 54 7.0	5 18.0	44 45.2	48 49.0
2362	" . . .		3 April 3	43 51.7	53.5	25 54 2.6	5 18.0	44 45.2	48 44.6
2363	" . . .		3 April 8	43 51.7	53.5	25 54 5.1	5 18.6	44 45.2	48 46.5
2364	" . . .		3 April 13	43 52.3	53.6	25 54 4.6	5 19.1	44 45.9	48 45.5
2365	" . . .	5.6	5 April 11	43 59.3	46.4	25 53 24.2	4 36.3	44 45.7	48 47.9
2366	55 Leonis . .	7	3 Feb. 18	44 34.0	50.7	1 53 18.6	5 15.6	10 45 24.7	+ 1 48 3.0
2367	" . . .		3 May 3	44 33.7	50.8	1 53		45 24.5	48
2368	" . . .	5.6	3 May 9	44 33.5	50.8	1 53 13.9	5 14.2	45 24.3	47 59.7
2369	" . . .	6.5	5 Mar. 23	44 41.0	43.7	1 52 36.6	4 31.2	45 24.7	48 5.4
2370	50 Leonis Minóris	7	3 April 16	44 48.4	53.6	26 39 16.5	5 20.1	10 45 42.0	+26 33 56.4
2371	" . . .	7.8	3 April 19	44 47.9	53.7	26 39 15.4	5 20.4	45 41.6	33 55.0
2372	" . . .	6	3 April 27	44 48.2	53.8	26 39 15.6	5 21.2	45 42.0	33 54.4
2373	57 Leonis . .	6	5 Mar. 23	45		1 34 25.3	4 31.3	10 46	+ 1 29 54.0
2374	Piazzi 200 . .	8	3 April 3	47 1.7	52.7	20 46 43.6	5 18.1	10 47 54.4	+20 41 25.5
2375	" . . .	8	3 April 19	47 2.0	52.8	20 46 42.4	5 19.7	47 54.8	41 22.7
2376*	47 Ursæ Majoris		3 April 25	47 17.9	55.9	41 35 7.0	5 26.5	10 48 13.8	+41 29 40.5
2377	" . . .		3 April 26	47 18.1	55.9	41 35 9.8	5 26.7	48 14.0	29 43.1
2378	" . . .	8	5 April 29	47 24.2	48.5	41 34 30.1	4 44.2	48 12.7	29 45.9
2379	Piazzi 203 . .	6	3 April 27	47 25.3	55.2	37 15 19.7	5 25.6	10 48 20.5	+37 9 54.1
2380	" . . .	6.7	3 April 28	47 25.4	55.2	37 15 16.9	5 25.8	48 20.6	9 51.1
2381	" . . .	6	3 April 30	47 25.4	55.2	37 15 22.7	5 26.0	48 20.6	9 56.7
2382	" . . .	6.7	3 May 1	47 25.4	55.2	37 15 20.2	5 26.1	48 20.6	9 54.1
2383*	49 Ursæ Majoris		3 April 29	48 39.6	55.6	40 22 28.4	5 27.2	10 49 35.2	+40 17 1.2
2384	" . . .	6.7	3 May 1	(48)		+40 22 32.1	5 27.5	(49)	17 4.6
2385	Lalande 21116 .	7.8	3 April 16	49 0.0	50.2	— 2 18 51.7	5 14.2	10 49 50.2	— 2 24 5.9
2386	" . . .	8	3 May 2	49 0.3	50.3	— 2 19 2.5	5 14.4	49 50.6	24 16.9
2387	58 Leonis d		3 Feb. 18	49 22.6	51.0	+ 4 46 34.2	5 17.4	10 50 13.6	+ 4 41 16.8
2388	" . . .		3 Feb. 19	49 22.1	51.0	4 46 32.4	5 17.3	50 13.1	41 15.1
2389	" . . .		3 Feb. 26	49 22.4	50.9	4 46 36.6	5 16.7	50 13.3	41 19.9
2390	" . . .		3 April 2	10 49 22.9	+ 50.8	+ 4 46 35.2	— 5 14.8	10 50 13.7	+ 4 41 20.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2391*	58 Leonis d		3 April 3	10 49 19.0	+ 50.8	+ 4 46 33.7	− 5 15.8	10 50 9.8	+ 4 41 17.9
2392	" . .		3 April 14	49 23.1	50.9	4 46 38.8	5 16.0	50 14.0	41 22.8
2393	" . . .		5 Mar. 23	49 29.5	44.0	4 45 54.8	4 32.9	50 13.5	41 21.9
2394	59 Leonis c		3 April 8	49 31.1	51.1	7 15 40.7	5 16.4	10 50 22.2	+ 7 10 24.3
2395	" . . .		3 April 13	49 31.2	51.2	7 15 39.5	5 16.6	50 22.4	10 22.9
2396	" . . .		3 April 19	49 31.2	51.2	7 15 42.2	5 16.9	50 22.4	10 25.3
2397	Bessel, W.1082 .	7	3 April 27	49 59.3	54.1	31 1 53.3	5 24.7	10 50 53.4	+30 56 28.6
2398	60 Leonis b		3 April 12	50 45.2	52.7	21 20 17.7	5 20.5	10 51 37.9	+21 14 57.2
2399	Groombridge 1730	7.8	3 May 1	51 21.2	56.4	45 30 0.9	5 29.9	10 52 17.6	+45 24 31.0
2400	" . . .	7.8	5 April 29	51 28.0	48.8	+45 29 22.5	4 46.7	52 16.8	24 35.8
2401	Bessel, W.991 .	7	3 April 16	51 36.3	50.2	− 2 21 0.5	5 15.2	10 52 26.5	− 2 26 15.7
2402	Piazzi 224 . .	6	3 April 26	52 3.2	53.4	+26 56 15.6	5 24.1	10 52 56.6	+26 50 51.5
2403	" . . .	7	3 April 27	52 4.0	53.4	26 56 17.9	5 24.2	52 57.4	50 53.7
2404	" . . .	6.7	3 April 29	52 3.6	53.4	26 56 14.9	5 24.4	52 57.0	50 50.5
2405	" . . .	6.7	5 April 26	52 10.5	46.3	26 55 33.0	4 41.0	52 56.8	50 52.0
2406	Groombridge 1732		3 April 28	52 10.9	55.2	40 2 0.5	5 28.3	10 53 6.1	+39 56 32.2
2407	" . . .	7	3 April 30	52 10.9	55.3	40 2 6.2	5 28.5	53 6.2	56 37.7
2408	Flamsteed, B.1571	8.9	3 April 3	52 25.3	51.2	8 44 40.9	5 17.8	10 53 16.5	+ 8 39 23.1
2409	" . . .	8.9	3 April 19	52 25.6	51.3	8 44 45.8	5 18.4	53 16.9	39 27.4
2410	51 Ursæ Majoris		3 April 25	52 26.5	55.1	39 24 27.5	5 27.8	10 53 21.6	+39 18 59.7
2411	62 Leonis g		3 Feb. 26	52 31.7	50.5	1 9 45.2	5 18.0	10 53 22.2	+ 1 4 27.2
2412	" . . .		3 April 13	52 31.5	50.5	1 9 44.3	5 16.4	53 22.0	4 27.9
2413	Piazzi 228 . .	8	3 April 25	52 39.2	55.1	39 24 54.9	5 27.8	10 53 34.3	+39 19 27.1
2414	467 Mayer . .	7	3 April 14	52 48.9	50.9	4 48 8.8	5 17.4	10 53 39.8	+ 4 42 51.4
2415	Groombridge 1734	8	5 April 29	53 34.3	48.6	45 27 33.5	4 47.3	10 54 22.9	+45 22 46.2
2416	51 Leonis Minoris	7	3 April 26	53 40.6	53.2	26 22 20.5	5 24.6	10 54 33.8	+26 16 55.9
2417	" . . .	7.8	3 April 27	53 41.2	53.3	26 22 20.6	5 24.7	54 34.5	16 55.9
2418	" . . .	7.8	5 April 26	53 48.1	46.1	+26 21 38.3	4 41.4	54 34.2	16 56.9
2419*	Piazzi 233 . .	8	3 Feb. 18	53 41.1	50.3	− 1 20 42.8	5 19.6	10 54 31.4	− 1 26 2.4
2420*	" . . .	9.10	3 Feb. 19	53 40.8	50.3	− 1 20		54 31.1	26
2421	63 Leonis χ		3 Feb. 26	53 50.8	51.2	+ 8 30 12.8	5 18.3	10 54 42.0	+ 8 24 54.5
2422	" . . .		3 April 2	53 50.8	51.2	8 30 12.4	5 18.2	54 42.0	24 54.2
2423	" . . .		3 April 3	53 50.6	51.2	8 30 10.5	5 18.2	54 41.8	24 52.3
2424	" . . .		3 April 8	53 50.6	51.2	8 30 7.6	5 18.4	54 41.8	24 49.2
2425	" . . .		3 April 19	53 50.9	51.3	8 30 10.2	5 18.8	54 42.2	24 51.4
2426	" . . .		3 May 2	53 50.4	51.4	8 30 9.9	5 19.6	54 41.8	24 50.3
2427	Lalande 21255 .	8	3 May 1	54 29.0	56.0	45 17 5.8	5 31.0	10 55 25.0	+45 11 34.8
2428	" . . .	7	5 April 29	54 36.6	48.5	45 16 25.3	4 47.6	55 25.1	11 37.7
2429	Piazzi 239 . .	7.8	3 May 2	54 54.7	51.4	8 18 7.4	5 19.9	10 55 46.1	+ 8 12 47.5
2430	Lalande 21277 .	9.10	3 April 16	55 22.6	52.6	21 39 8.7	5 22.7	10 56 15.2	+21 33 46.0
2431	52 Leonis Minoris	6.7	3 April 12	55 25.2	53.1	26 42 18.9	5 23.6	10 56 18.3	+26 36 55.3
2432*	" . .	7	3 April 27	55 25.0	53.2	26 42 19.8	5 25.3	56 18.2	36 54.5
2433	" . . .		3 May 3	55 25.5	53.3	26 42 20.6	5 26.0	56 18.8	36 54.6
2434	65 Leonis p^2		3 Feb. 18	55 51.1	50.8	3 7 43.9	5 20.0	10 56 41.9	+ 3 2 23.9
2435*	" . . .		3 Feb. 19	55 51.5	50.8	3 7 40.8	5 20.0	56 42.3	2 20.8
2436	" . . .		3 April 8	55 51.2	50.6	3 7 40.9	5 18.0	56 41.8	2 22.9
2437	" . . .		3 April 13	55 51.5	50.7	3 7 39.3	5 18.2	56 42.2	2 21.1
2438	" . . .		3 April 14	55 52.1	50.7	3 7 45.5	5 18.2	56 42.8	2 27.3
2439	64 Leonis . .	6	3 Feb. 26	56 2.6	52.8	24 29 29.2	5 19.0	10 56 55.4	+24 24 10.2
2440	Bessel, W.1218–20	7	3 April 30	56 38.0	54.5	37 10 57.0	5 29.3	10 57 32.5	+37 5 27.7
2441	67 Leonis . .		3 April 3	57 10.9	52.8	25 49 40.3	5 22.8	10 58 3.7	+25 44 17.5
2442	" . . .	6	3 April 12	57 10.5	52.9	25 49 42.1	5 24.0	58 3.4	44 18.1
2443	" . . .	5.6	3 April 25	57 10.5	53.0	25 49 42.7	5 25.5	58 3.5	44 17.2
2444	" . . .		3 April 26	57 10.6	53.0	25 49 46.8	5 25.6	58 3.6	44 21.2
2445	" . . .		3 April 27	57 10.6	53.0	25 49 45.4	5 25.7	58 3.6	44 19.7
2446	" . . .		3 May 3	57 11.0	53.1	25 49 45.9	5 26.3	58 4.1	44 19.6
2447	Piazzi 251 . .	6	3 April 29	57 12.6	52.3	18 22 47.5	5 23.7	10 58 4.9	+18 17 23.8
2448	" . . .	6.7	5 April 26	57 20.6	45.2	18 22 6.7	4 40.2	58 5.8	17 26.5
2449	Piazzi 252 . .	7	3 April 30	57 22.3	54.5	37 29 3.4	5 29.5	10 58 16.8	+37 23 33.9
2450	" . . .	6	5 April 29	10 57 29.6	+ 47.3	+37 28 19.1	− 4 45.9	10 58 16.9	+37 23 33.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2451	52 Ursæ Maj. ψ		3 May 1	10 57 26.9	+ 55.8	+45 40 25.3	− 5 32.1	10 58 22.7	+45 34 53.2
2452	66 Leonis . .	8	3 April 2	58 10.7	50.3	− 0 9 43.2	5 18.3	10 59 1.0	− 0 15 1.5
2453	" . . .		3 April 14	10 58 10.5	50.4	− 0 9 38.3	5 18.2	59 0.9	14 56.5
2454	Piazzi 4 . . .	6.7	3 April 12	11 0 21.2	51.7	+15 34 27.6	5 22.4	11 1 12.9	+15 29 5.2
2455	" . . .	6.7	3 April 13	0 22.0	51.7	15 34 28.4	5 22.5	1 13.7	29 5.9
2456*	" . . .	7	3 April 25	0 22.1	51.8	15 34 28.3	5 23.6	1 13.9	29 4.7
2457	" . . .	6	3 May 3	0 22.2	51.9	15 34 31.7	5 24.2	1 14.1	29 7.5
2458	Piazzi 5 . . .	7.8	3 April 30	0 19.6	54.3	38 4 11.8	5 30.6	11 1 13.9	+37 58 41.2
2459	Lalande 21411	7.8	3 April 27	0 32.6	54.0	35 57 51.7	5 29.7	11 1 26.6	+35 52 22.0
2460	" . . .	6.7	3 May 9	0 32.1	54.2	35 57 50.1	5 31.3	1 26.3	52 18.8
2461	Lalande 21418 .	7	5 April 29	0 50.0	46.9	36 59 18.5	4 47.0	11 1 36.9	+36 54 31.5
2462*	Lalande 21422 .	7	3 April 29	0 53.8	52.3	25 49 32.8	5 23.8	11 1 46.1	+25 44 9.0
2463	Anonyma . .	8.	3 April 8	1 6.6	50.4	0 45 49.1	5 19.3	11 1 57.0	+ 0 40 29.8
2464	Lalande 21440 .	6	5 April 26	1 40.8	46.5	34 36 50.0	4 46.2	11 2 27.3	+34 32 3.8
2465	469 Mayer . .	7	3 April 26	2 17.6	52.3	21 18 46.6	5 25.9	11 3 9.9	+21 13 20.7
2466	" . . .	6	3 May 1	2 17.3	52.4	21 18 47.4	5 26.4	3 9.7	13 21.0
2467	68 Leonis δ		3 Feb. 26	2 34.7	52.3	21 42 25.7	5 21.0	11 3 27.0	+21 37 4.7
2468	" . . .		3 April 2	2 35.0	52.2	21 42 27.9	5 23.6	3 27.2	37 6.3
2469*	" . . .		3 April 3	2 34.4	52.2	21 42 24.7	5 23.7	3 26.6	37 1.0
2470	" . . .		3 April 16	2 34.8	52.2	21 42 27.4	5 25.1	3 27.0	37 2.3
2471	" . . .		3 April 25	2 34.4	52.3	21 42 26.8	5 26.0	3 26.7	37 0.8
2472*	" . . .		3 April 26	2 34.5	52.3	21 42 30.0	5 26.0	3 26.8	37 4.0
2473	" . . .		3 April 27	2 34.6	52.3	21 42 29.7	5 26.2	3 26.9	37 3.5
2474	" . . .		3 April 29	2 34.1	52.4	21 42 28.4	5 26.4	3 26.5	37 2.0
2475	" . . .		3 May 3	2 34.4	52.4	21 42 31.3	5 26.8	3 26.8	37 4.5
2476*	69 Leonis . .		3 Feb. 18	2 40.3	50.6	1 6 22.7	5 22.6	11 3 30.9	+ 1 1 0.1
2477	" . . .		3 Feb. 19	2 40.4	50.6	1 6 21.2	5 22.4	3 31.0	0 58.8
2478	" . . .		3 April 8	2 40.7	50.4	1 6 20.2	5 19.9	3 31.1	1 0.3
2479	Flamsteed, B.1587	6	3 April 19	2 46.3	51.2	9 14 32.0	5 22.2	11 3 37.5	+ 9 9 9.8
2480	70 Leonis θ		3 Feb. 19	(2)		16 36 37.5	5 21.3	11 (3)	+16 31 16.2
2481	" . . .		3 April 12	2 52.0	51.8	16 36 36.6	5 23.5	3 43.8	31 13.1
2482	" . . .		3 April 13	2 51.8	51.8	16 36 36.7	5 23.6	3 43.6	31 13.1
2483	" . . .		3 April 14	2 52.1	51.8	16 36 42.9	5 23.7	3 43.9	31 19.2
2484	Lalande 21473 .	7	3 May 1	2 55.2	52.3	21 12		11 3 47.5	+21 7
2485	72 Leonis .		3 April 8	(3)	52.3	24 16 26.7	5 25.4	11 (4)	+24 11 1.3
2486*	Lalande 21503 .	9	3 April 3	4 3.5	51.7	16 17 26.9	5 22.7	11 4 55.2	+16 12 4.2
2487	73 Leonis n		3 Feb. 18	4 31.6	51.7	14 29 10.8	5 21.8	11 5 23.3	+14 23 49.0
2488	" . . .		3 Feb. 19	4 31.5	51.7	14 29 10.2	5 21.9	5 23.2	23 48.3
2489	" . . .		3 Feb. 26	4 32.1	51.6	14 29 9.5	5 21.7	5 23.7	23 47.8
2490	" . . .		3 April 12	4 32.0	51.5	+14 29 9.4	5 23.5	5 23.5	23 45.9
2491	74 Leonis φ		3 April 2	5 40.0	50.1	− 2 28 13.0	5 20.4	11 6 30.1	− 2 33 33.4
2492	" . . .		3 April 14	5 39.9	50.1	2 28 10.9	5 20.2	6 30.0	33 31.1
2493	" . . .		3 April 16	5 40.1	50.2	− 2 28 14.9	5 20.1	6 30.3	33 35.0
2494	75 Leonis . .		3 Feb. 26	6 8.1	50.6	+ 3 11 58.6	5 22.6	11 6 58.7	+ 3 6 36.0
2495	Piazzi 27 . . .	7.8	5 April 29	6 36.2	47.2	43 29 24.7	4 40.5	11 7 23.4	+43 24 44.2
2496	53 Ursæ Maj. ξ		3 April 13	6 36.3	53.1	32 44 46.7	5 28.5	11 7 29.4	+32 39 18.2
2497	" . . .		3 April 25	6 36.6	53.2	32 44 49.1	5 30.3	7 29.8	39 18.8
2498*	" . . .		3 April 26	6 36.3	53.2	32 44 51.6	5 30.4	7 29.5	39 21.2
2499	" . . .		3 April 27	6 36.7	53.2	32 44 49.1	5 30.6	7 29.9	39 18.5
2500*	" . . .		3 April 28	6 36.5	53.2	32 44 45.3	5 30.7	7 29.7	39 14.6
2501	54 Ursæ Maj. ν		3 April 26	6 45.3	53.3	34 16 35.0	5 30.9	11 7 38.6	+34 11 4.1
2502	" . . .		3 April 29	6 45.6	53.4	34 16 31.5	5 31.3	7 39.0	11 0.2
2503*	" . . .		3 April 30	6 45.2	53.4	34 16 34.5	5 31.4	7 38.6	11 3.1
2504	Piazzi 30 . . .	6	5 April 26	7 7.9	46.4	36 39 41.8	4 48.0	11 7 54.3	+36 34 53.8
2505	55 Ursæ Maj. .	6	3 May 3	7 17.6	54.0	39 22 24.4	5 33.5	11 8 11.6	+39 16 50.9
2506*	Lalande 21571 .	7	3 May 2	7 38.4	51.7	16		11 8 30.1	+16
2507	76 Leonis . .		3 Feb. 26	7 48.0	50.6	2 50 12.3	5 23.2	11 8 38.6	+ 2 44 49.1
2508	" . . .		3 April 2	7 47.9	50.5	2 50 6.0	5 21.8	8 38.4	44 44.2
2509	" . . .		3 April 3	7 48.5	50.5	2 50 3.8	5 21.7	8 39.0	44 42.1
2510	Lalande 21578 .	7	3 April 25	11 7 51.8	+ 53.2	+34 0 27.0	− 5 30.9	11 8 45.0	+33 54 56.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2511	Lalande 21578	7	3 April 26	11 7 51.7	+ 53.2	+34 0 29.5	− 5 31.1	11 8 44.9	+33 54 58.4
2512	" . .	7	3 April 28	7 51.8	53.2	34 0 23.2	5 31.4	8 45.0	54 51.8
2513	" . . .	6	3 April 30	7 50.8	53.3	+34 0 30.4	5 31.6	8 44.1	54 58.8
2514	Lalande 21586 .	7	3 April 14	8 22.3	50.3	− 0 27 46.1	5 21.4	11 9 12.6	− 0 33 7.5
2515	" . . .		3 May 9	8 21.4	50.5	− 0 27 53.0	5 22.0	9 11.9	33 15.0
2516	Johnson 2664 .	8	5 April 29	8 38.7	47.4	+46 10 27.1	4 51.4	11 9 26.1	+46 5 35.7
2517	Piazzi 40. . .	7	3 April 19	9 3.7	51.8	18 29 42.6	5 26.3	11 9 55.5	+18 24 16.3
2518*	" . . .	8	3 May 2	9 2.6	51.8	18 29 47.0	5 27.6	9 54.4	24 19.4
2519*	" . . .	8.9	3 May 3	9 3.0	51.9	18 29 47.0	5 27.6	9 54.9	24 19.4
2520	" . . .	·	3 May 9	9 0.9	51.9	18 29 47.5	5 28.2	9(52.8)	24 19.3
2521	Groombridge 1768	8	3 April 30	9 42.8	54.0	41 37 22.4	5 34.3	11 10 36.8	+41 31 48.1
2522	" . . .	7	5 April 26	9 49.8	46.7	41 36 33.6	4 49.9	10 36.5	31 43.7
2523	77 Leonis σ		3 Feb. 18	9 58.1	51.0	7 12 48.9	5 24.1	11 10 49.1	+ 7 7 24.8
2524	" . . .		3 Feb. 19	9 57.6	51.0	7 12 47.8	5 23.6	10 48.6	7 24.2
2525	" . . .		3 Feb. 26	9 58.3	50.9	7 12 51.3	5 23.5	10 49.2	7 27.8
2526	" . . .		3 April 2	9 58.2	51.0	7 12 49.4	5 23.7	10 49.2	7 25.7
2527	" . . .		3 April 3	9 58.4	51.0	7 12 44.9	5 23.7	10 49.4	7 21.2
2528	" . . .		3 April 29	9 58.4	51.0	7 12 44.9	5 24.3	10 49.4	7 20.6
2529	Groombridge 1772	7	3 April 27	10 52.7	53.8	41 21 45.7	5 34.0	11 11 46.5	+41 16 11.7
2530	" . . .	7	3 April 28	10 52.2	53.8	41 21 42.8	5 34.2	11 46.0	16 8.6
2531	" . . .	7	3 April 30	10 52.5	53.8	41 21 52.3	5 34.5	11 46.3	16 17.8
2532	" . . .	6	5 April 26	10 59.1	46.6	41 21 8.0	4 50.1	11 45.7	16 17.9
2533	56 Ursæ Majoris		3 April 25	10 54.3	54.1	44 40 14.0	5 34.6	11 11 48.4	+44 34 39.4
2534*	" . . .		3 April 26	10 53.8	54.1	44 40 18.0	5 34.8	11 47.9	34 43.2
2535	" . . .	6	5 April 29	11 1.0	47.0	44 39 33.2	4 51.5	11 48.0	34 41.7
2536	71 Leonis . .	8	3 May 2	11 8.8	51.8	18 37 26.2	5 28.1	11 12 0.6	+18 31 58.1
2537	Groombridge 1774		3 May 9	12 8.8	53.5	38 25 26.4	5 35.1	11 13 2.3	+38 19 51.3
2538	Piazzi 50. . .	6.7	3 April 14	12 13.6	50.4	1 19 13.9	5 22.9	11 13 4.0	+ 1 13 51.0
2539	Lalande 21688 .	6.7	3 May 1	12 17.5	51.8	18 19 44.3	5 28.1	11 13 9.3	+18 14 16.2
2540	78 Leonis ι		3 Feb. 26	12 38.2	51.2	11 43 12.1	5 24.1	11 13 29.4	+11 37 48.0
2541	" . . .		3 April 2	12 38.1	51.1	11 43 13.0	5 24.5	13 29.2	37 48.5
2542*	" . . .		3 April 3	12 38.1	51.1	11 43 9.7	5 24.6	13 29.2	37 45.1
2543	" . . .		3 April 12	12 37.8	51.1	11 43 10.0	5 25.1	13 28.9	37 44.9
2544	" . . .		3 April 13	12 39.1	51.1	11 43 11.4	5 25.1	13 30.2	37 46.3
2545	79 Leonis . .		3 Feb. 18	(12)		2 35 44.3	5 25.4	11(13)	+ 2 30 18.9
2546	" . . .		3 Feb. 19	12 55.1	50.7	2 35 40.7	5 25.2	13 45.8	30 15.5
2547	" . . .		3 April 16	12 56.0	50.5	2 35 38.9	5 23.4	13 46.5	30 15.5
2548	" . . .	5.6	3 April 29	12 56.0	50.6	2 35 36.3	5 23.7	13 46.6	30 12.6
2549	81 Leonis . .		3 April 12	14 18.6	51.4	17 38 41.1	5 26.8	11 15 10.0	+17 33 14.3
2550	" . . .		3 April 19	14 18.7	51.5	17 38 41.3	5 27.5	15 10.2	33 13.8
2551	" . . .		3 April 26	14 18.3	51.6	17 38 42.5	5 28.1	15 9.9	33 14.4
2552	" . . .		3 May 1	14 17.7	51.6	17 38 44.3	5 28.5	15 9.3	33 15.8
2553	" . . .	7	3 May 2	14 18.6	51.6	17 38 45.3	5 28.6	15 10.2	33 16.7
2554	" . . .	7	3 May 3	14 18.7	51.6	17 38 45.8	5 28.7	15 10.3	33 17.1
2555	80 Leonis . .		3 April 2	14 42.6	50.6	5 3 1.3	5 23.9	11 15 33.2	+ 4 57 37.4
2556	" . . .		3 April 14	14 43.3	50.6	5 3 4.9	5 24.3	15 33.9	57 40.6
2557	Lalande 21756, 7	7	5 April 29	14 54.9	45.8	34 37 42.8	4 49.5	11 15 40.7	+34 32 53.3
2558	Arg. Z., Oel. 11722	8.9	3 April 27	15 43.6	54.0	47 29 30.4	5 36.7	11 16 37.6	+47 23 53.7
2559	" . . .	8.9	3 April 28	15 44.2	54.0	47 29 24.1	5 36.9	16 38.2	23 47.2
2560	" . . .	9.10	3 April 30	15 44.8	54.0	47 29 33.8	5 37.2	16 38.8	23 56.6
2561	83 Leonis . .	8	3 Feb. 26	15 47.5	50.7	4 11 29.6	5 25.2	11 16 38.2	+ 4 6 4.4
2562	" . . .	8.9	3 April 3	15 47.9	50.5	4 11 27.1	5 24.1	16 38.4	6 3.0
2563	" . . .	7	3 April 29	15 47.7	50.7	4 11 25.9	5 24.9	16 38.4	6 1.0
2564	Anonyma . . .	6.7	5 April 26	16 4.1	46.6	46 22 0.4	4 52.4	11 16 50.7	+46 17 8.0
2565	Lalande 21789 .	5.7	5 April 26	16 12.6	46.6	46 3 39.4	4 52.4	11 16 59.2	+45 58 47.0
2566	84 Leonis τ		3 Feb. 18	16 48.3	50.8	4 2 49.0	5 26.1	11 17 39.1	+ 3 57 22.9
2567	" . . .		3 Feb. 19	16 48.1	50.8	4 2 47.6	5 26.0	17 38.9	57 21.6
2568	" . . .		3 Feb. 26	16 48.1	50.6	4 2 50.8	5 25.5	17 38.7	57 25.3
2569	" . . .		3 April 2	16 48.4	50.5	4 2 50.3	5 24.2	17 38.9	57 26.1
2570	" . . .		3 April 3	11 16 48.1	+ 50.5	+ 4 2 42.9	− 5 24.3	11 17 38.6	+ 3 57 18.6

No.	Name	Mag.	Date	App't α	Reduct'n	pp't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2571	84 Leonis τ		3 April 16	11 16 48.2	+ 50.6	+ 4 2 51.7	— 5 24.6	11 17 38.8	+ 3 57 27.1
2572	" . . .		3 April 19	16 48.2	50.6	4 2 45.4	5 24.7	17 38.8	57 20.7
2573	" . . .		3 April 29	16 47.9	50.6	4 2 47.8	5 25.1	17 38.5	57 22.7
2574*	" . . .		3 May 16	16 48.3	50.8	4 2 44.7	5 25.9	17 39.1	57 18.8
2575	Johnson 2688 .	7.8	3 April 25	16 53.2	53.1	40 29 56.2	5 34.8	11 17 46.3	+40 24 21.4
2576	57 Ursæ Majoris		3 April 25	17 22.1	53.1	40 31 48.5	5 34.9	11 18 15.2	+40 26 13.6
2577*	" . . .	6	5 April 29	17 29.2	46.0	40 31 4.3	4 51.7	18 15.2	26 12.6
2578	85 Leonis . .		3 April 12	18 24.5	51.3	16 36 29.9	5 27.4	11 19 15.8	+16 31 2.5
2579	" . . .		3 April 13	18 25.0	51.3	16 36 29.3	5 27.5	19 16.3	31 1.8
2580	Lalande 21863 .	6	3 April 26	18 35.1	52.3	31 10 15.8	5 32.8	11 19 27.4	+31 4 43.0
2581	" . . .	6	3 May 9	18 34.7	52.4	31 10 14.7	5 34.4	19 27.1	4 40.3
2582	58 Ursæ Majoris	6.7	5 April 29	18		44 21 4.0	4 52.7	11 19	+44 16 11.3
2583	Groombridge 1794	7	3 April 27	18 46.8	53.4	44 46 8.1	5 36.6	11 19 40.2	+44 40 31.5
2584	" . . .	7	3 April 28	18 46.9	53.4	44 46 3.0	5 36.8	19 40.3	40 26.2
2585	" . . .	7	3 April 30	18 47.0	53.4	44 46 14.4	5 37.1	19 40.4	40 37.3
2586	86 Leonis . .		3 April 16	19 10.3	51.4	19 36 7.9	5 28.6	11 20 1.7	+19 30 39.3
2587	" . . .		3 May 1	19 10.1	51.5	19 36 5.5	5 30.2	20 1.6	30 35.3
2588	" . . .	6	3 May 2	19 10.3	51.5	+19 36 5.7	5 30.3	20 1.8	30 35.4
2589	87 Leonis e		3 April 2	19 15.1	50.1	— 1 48 37.5	5 24.0	11 20 5.2	— 1 54 1.5
2590	" . . .	6	3 April 16	19 16.0	50.4	— 1 48 41.7	5 24.1	20 6.4	54 5.8
2591	Lalande 21892,3	7.8	3 April 12	20 13.0	51.3	+18 56 39.7	5 28.3	11 21 4.3	+18 51 11.4
2592	" . . .	7	3 May 2	20 12.8	51.5	18 56 47.5	5 30.3	21 4.3	51 17.2
2593	" . . .		3 May 9	20 12.0	51.5	18 56 42.7	5 30.9	21 3.5	51 11.8
2594	88 Leonis . .		3 Feb. 26	20 33.8	51.3	15 34 10.6	5 25.6	11 21 25.1	+15 28 45.0
2595	" . . .	7	3 April 29	20 33.9	51.2	+15 34 9.4	5 29.1	21 25.1	28 40.3
2596	480 Mayer . .		3 April 19	20 56.6	50.0	— 5 16 24.9	5 23.6	11 21 46.6	— 5 21 48.5
2597	Lalande 21922 .	7.8	3 April 27	21 29.6	52.4	+35 14 55.4	5 34.5	11 22 22.0	+35 9 20.9
2598	" . . .	8	3 April 28	21 29.2	52.4	35 14 49.5	5 34.7	22 21.6	9 14.8
2599	Lalande 21925 .	7.8	3 April 12	21 32.1	51.3	19 11 45.0	5 28.6	11 22 23.4	+19 6 16.4
2600	" . . .	7	3 April 26	21 33.3	51.4	19 11 48.0	5 30.0	22 24.7	6 18.0
2601	" . . .	7.8	3 May 2	21 32.9	51.4	19 11 49.1	5 30.5	22 24.3	6 18.6
2602	" . . .	7	3 May 9	21 32.9	51.5	19 11 50.0	5 31.2	22 24.4	6 18.8
2603	Bessel, W.481 .	7	5 April 26	22 0.9	44.8	37 57 6.0	4 51.1	11 22 45.7	+37 52 14.9
2604	Piazzi 100 . .	7.8	3 April 3	22 12.5	50.5	4 33 22.8	5 25.5	11 23 3.0	+ 4 27 57.3
2605	" . . .	8	3 April 16	22 12.3	50.5	4 33 28.6	5 25.7	23 2.8	28 2.9
2606	Lalande 21947 .	6.7	3 April 30	22 24.0	52.5	38 0 59.3	5 35.9	11 23 16.5	+37 55 23.4
2607	" . . .	5.6	5 April 26	22 30.9	45.5	38 0 17.0	4 51.2	23 16.4	55 25.8
2608	" . . .	7	5 April 29	22 30.4	45.5	38 0 15.4	4 51.7	23 15.9	55 23.7
2609	Bessel, W.448 .	8	3 April 2	22 29.3	50.4	+ 3 41 40.2	5 25.3	11 23 19.7	+ 3 36 14.9
2610	Piazzi 104 . .	8	3 April 19	22 37.9	50.0	— 5 20 38.2	5 23.9	11 23 27.9	— 5 26 2.1
2611	89 Leonis . .		3 Feb. 18	23 17.1	50.8	+ 4 15 41.6	5 27.4	11 24 7.9	+ 4 10 14.2
2612*	" . . .		3 Feb. 19	23 17.0	50.7	4 15 41.3	5 27.4	24 7.7	10 13.9
2613	" . . .		3 April 3	23 17.2	50.5	4 15 36.4	5 25.7	24 7.7	10 10.7
2614	" . . .	6	3 April 16	23 17.2	50.5	4 15 44.6	5 26.0	24 7.7	10 18.6
2615*	90 Leonis . .	6	3 Feb. 26	23 26.0	51.3	17 59 28.6	5 26.8	11 24 17.3	+17 54 1.8
2616	" . . .		3 April 12	23 25.8	51.2	17 59 30.2	5 28.7	24 17.0	54 1.5
2617	" . . .		3 April 13	23 25.5	51.2	17 59 31.6	5 28.7	24 16.7	54 2.9
2618	" . . .		3 April 25	23 25.5	51.2	17 59 32.9	5 30.0	24 16.7	52 2.9
2619	" . . .		3 April 29	23 25.7	51.3	17 59 31.1	5 30.3	24 17.0	54 0.8
2620*	" . . .		3 May 16	23 25.6	51.4	17 59 30.9	5 31.9	24 17.0	53 59.0
2621	Lalande 21987 .	7.8	3 April 26	24 23.6	51.3	19 4 14.1	5 30.5	11 25 14.9	+18 58 43.6
2622	" . . .	8	3 April 27	24 22.8	51.3	19 4 10.6	5 30.5	25 14.1	58 40.1
2623	" . . .	7	3 May 2	24 23.9	51.3	19 4 15.3	5 31.0	25 15.2	58 44.3
2624	45 (Hev.) Leonis	6	3 April 28	24 53.1	51.8	28 58 42.2	5 33.6	11 25 44.9	+28 53 8.6
2625	" . . .	6	3 April 30	24 53.3	51.8	28 58 43.1	5 33.7	25 45.1	53 9.4
2626*	" . . .	6	3 May 9	24 52.3	51.9	28 58 41.8	5 34.9	25 44.2	53 6.9
2627	Lalande 22018 .	7	3 April 28	25 50.3	51.7	28 58 24.4	5 33.7	11 26 42.0	+28 52 50.7
2628	91 Leonis υ		3 April 3	25 52.5	50.2	0 22 11.8	5 25.5	11 26 42.7	+ 0 16 46.3
2629	" . . .		3 April 13	25 52.1	50.3	0 22 11.5	5 25.6	26 42.4	16 45.9
2630	" . . .		3 April 19	11 25 51.8	+ 50.3	+ 0 22 11.4	— 5 25.7	11 26 42.1	+ 0 16 45.7

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2631	91 Leonis υ		3 April 29	11 25 52.2	+ 50.4	+ 0 22 8.6	− 5 25.9	11 26 42.6	+ 0 16 42.7
2632	Piazzi 121	7.6	3 April 27	26 39.2	51.9	33 4 58.8	5 35.7	11 27 31.1	+32 59 23.1
2633	59 Ursæ Majoris		3 April 25	26 46.1	52.6	44 49 35.8	5 37.6	11 27 38.7	+44 43 58.2
2634	"	6	5 April 26	26 54.0	45.5	44 48 55.2	4 53.5	27 39.5	44 1.7
2635	1 Virginis ω		3 Feb. 18	27 17.2	50.9	9 19 52.2	5 27.5	11 28 8.1	+ 9 14 24.7
2636*	"		3 Feb. 19	27 16.8	50.9	9 19 52.2	5 27.5	28 7.7	14 24.7
2637	"		3 Feb. 26	27 17.3	50.8	9 19 55.2	5 27.2	28 8.1	14 28.0
2638	"		3 April 2	27 17.7	50.6	9 19 52.7	5 27.0	28 8.3	14 25.7
2639	"		3 May 16	27 18.3	50.9	9 19 52.7	5 29.7	28 9.2	14 23.0
2640	Piazzi 132	7.8	3 April 13	29 18.4	50.3	2 9 3.0	5 26.5	11 30 8.7	+ 2 3 36.5
2641	"	7	3 April 26	29 18.3	50.4	2 9 2.7	5 26.9	30 8.7	3 35.8
2642	92 Leonis	6	3 Feb. 26	29 31.3	51.3	22 33 11.9	5 26.7	11 30 22.6	+22 27 45.2
2643	"		3 April 3	29 30.8	51.1	22 33 14.6	5 29.4	30 21.9	27 45.2
2644*	"		3 April 29	29 30.6	51.2	22 33 20.1	5 32.5	30 21.8	27 47.6
2645	"	4.5	5 Mar. 30	29 37.4	44.2	22 32 31.7	4 44.9	30 21.6	27 46.8
2646	61 Ursæ Majoris		3 April 16	29 36.6	51.7	35 25 32.3	5 33.8	11 30 28.3	+35 19 58.5
2647	"		3 April 25	29 37.2	51.8	35 25 29.5	5 35.5	30 29.0	19 54.0
2648	"		3 April 30	29 37.2	51.9	35 25 33.9	5 35.3	30 29.1	19 58.6
2649	Piazzi 137		3 May 13	30 13.7	52.3	42 26 33.4	5 40.1	11 31 6.0	+42 20 53.3
2650	62 Ursæ Majoris	5.6	3 April 27	30 16.7	51.6	32 56 45.3	5 35.1	11 31 8.3	+32 51 10.2
2651	"		3 April 28	30 16.7	51.6	32 56 41.1	5 35.3	31 8.3	51 5.8
2652	"	6.7	3 May 9	30 17.0	51.8	32 56 46.1	5 36.9	31 8.8	51 9.2
2653	"	6	5 April 26	30 23.8	44.7	32 56 6.1	4 50.8	31 8.5	51 15.3
2654	"	6	5 April 29	30 23.6	44.7	32 56 3.6	4 51.3	31 8.3	51 12.3
2655	Lalande 22144	7	5 Mar. 30	30 56.5	44.2	23 24 2.7	4 45.1	11 31 40.7	+23 19 17.6
2656	484 Mayer		3 April 19	31 3.6	50.5	5 56 41.3	5 27.7	11 31 54.1	+ 5 51 13.6
2657	Lalande 22155	7	3 May 1	31 19.6	50.5	3 33 41.7	5 27.6	11 32 10.1	+ 3 28 14.1
2658*	Lalande 22159	7	3 May 2	31 29.7	51.1	19 26 35.8	5 32.3	11 32 20.8	+19 21 3.5
2659	Lalande 22175,6	7	3 April 16	32 9.7	51.4	32 57 58.8	5 33.7	11 33 1.1	+32 52 25.1
2660	"	7	3 April 25	32 9.6	51.5	32 57 56.9	5 35.1	33 1.1	52 21.8
2661	"	6.7	3 April 27	32 9.2	51.5	32 58 2.6	5 35.3	33 0.7	52 27.3
2662	"	7	3 April 28	32 9.3	51.5	32 57 54.7	5 35.4	33 0.8	52 19.3
2663	"		3 April 30	32 9.5	51.5	32 58 2.1	5 35.8	33 1.0	52 26.3
2664	"	7.8	3 May 9	32 9.2	51.6	32 58 0.3	5 37.2	33 0.8	52 23.1
2665	"	7	5 April 26	32 16.5	44.6	32 57 18.0	4 51.0	33 1.1	52 27.0
2666	"	7	5 April 29	32 16.2	44.6	32 57 15.7	4 51.5	33 0.8	52 24.2
2667	Piazzi 149		5 Mar. 30	33 2.7	44.2	26 24 21.2	4 45.8	11 33 46.9	+26 19 35.4
2668	Lalande 22220	6	3 April 12	34 1.0	50.7	15 27 53.0	5 29.6	11 34 51.7	+15 22 23.4
2669	"	6.7	3 April 13	34 0.9	50.7	15 27 52.9	5 29.6	34 51.6	22 23.3
2670	"	7	5 April 29	34 8.0	44.0	15 27 10.2	4 46.9	34 52.0	22 23.3
2671	2 Virginis ξ^1		3 Feb. 26	34 6.7	50.7	9 27 37.2	5 28.1	11 34 57.4	+ 9 22 9.1
2672	"		3 Mar. 18	34 6.7	50.5	9 27 38.0	5 27.7	34 57.2	22 10.3
2673	"		3 April 2	34 7.1	50.5	9 27 39.2	5 28.0	34 57.6	22 11.2
2674*	"		3 April 3	34 6.5	50.5	9 27 37.0	5 28.0	34 57.0	22 9.0
2675	"		3 April 26	34 6.6	50.6	9 27 37.0	5 29.3	34 57.2	22 7.7
2676	Lalande 22222		3 May 2	34 6.9	51.0	21 5 43.2	5 29.9	11 34 57.9	+21 0 13.3
2677	Lalande 22231	7.8	3 April 19	34 16.7	50.5	8 13 59.2	5 28.9	11 35 7.2	+ 8 8 30.3
2678*	63 Ursæ Maj. χ		3 April 28	34 34.2	52.0	48 58 49.0	5 39.9	11 35 26.2	+48 53 9.1
2679	"		3 April 29	34 35.5	52.0	48 58 56.0	5 40.1	35 27.5	53 15.9
2680	3 Virginis ν		3 April 16	34 44.2	50.5	7 44 28.5	5 28.4	11 35 34.7	+ 7 39 0.1
2681	"		3 April 25	34 43.6	50.5	7 44 28.3	5 28.9	35 34.1	38 59.4
2682	Piazzi 156	6.7	3 April 30	35 46.3	51.1	24 55 23.7	5 34.0	11 36 37.4	+24 49 49.7
2683	"	6	3 May 2	35 46.7	51.1	24 55 23.9	5 34.2	36 37.8	49 49.7
2684	"	7	5 April 26	35 53.4	44.2	24 54 40.7	4 49.1	36 37.6	49 51.6
2685	4 Virginis ξ^2		3 Feb. 19	36 46.2	50.8	9 26 50.0	5 28.6	11 37 37.0	+ 9 21 21.4
2686*	"	7	3 Mar. 18	36 46.7	50.5	9 26 49.6	5 28.0	37 37.2	21 21.6
2687	"	5.6	3 April 16	36 47.8	50.5	9 26 52.2	5 28.8	37 38.3	21 23.4
2688	"		3 May 1	36 46.4	50.6	9 26 49.2	5 29.9	37 37.0	21 19.3
2689	"	5.6	5 April 10	36 53.6	43.7	9 26 8.4	4 44.4	37 37.3	21 24.0
2690	93 Leonis		3 Feb. 26	11 36 48.2	+ 51.0	+21 25 13.6	− 5 27.5	11 37 39.2	+21 19 46.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2691*	93 Leonis . .		3 April 2	11 36 47.7	+ 50.8	+21 25 24.5	— 5 30.0	11 37 38.5	+21 19 54.5
2692	" . .	5	5 April 29	36 54.6	44.1	21 24 38.5	4 48.8	37 38.7	19 49.7
2693	1604 Bradley .		3 April 3	37 30.1	50.6	15 29 9.9	5 29.2	11 38 20.7	+15 23 40.7
2694	" . . .	6.7	3 April 13	37 30.2	50.6	15 29 11.7	5 30.0	38 20.8	23 41.7
2695	Flamsteed, B.1656	7	3 April 25	38 0.9	50.5	6 23 40.6	5 29.0	11 38 51.4	+ 6 18 11.6
2696	94 Leonis β		3 Feb. 26	38 0.7	50.8	15 46 50.7	5 27.9	11 38 51.5	+15 41 22.8
2697	" . . .		3 April 3	38 0.7	50.6	15 46 52.3	5 29.3	38 51.3	41 23.0
2698	" . . .		3 April 12	38 1.0	50.6	15 46 54.3	5 30.0	38 51.6	41 24.3
2699	" . . .		3 April 13	38 1.1	50.6	15 46 55.1	5 30.1	38 51.7	41 25.0
2700	" . . .		3 April 19	38 0.7	50.6	15 46 56.2	5 30.7	38 51.3	41 25.5
2701	" . . .		3 April 29	38 0.7	50.7	15 46 55.1	5 31.6	38 51.4	41 23.5
2702	" . . .		3 May 13	38 0.7	50.8	15 46 52.9	5 32.9	38 51.5	41 20.0
2703	" . . .	2	3 May 16	38 0.9	50.8	15 46 52.3	5 33.2	38 51.7	41 19.1
2704	" . . .	2	3 May 20	38 0.6	50.9	15 46 58.1	5 33.5	38 51.5	41 24.6
2705	" . . .	2	3 May 31	38 0.5	51.0	15 46 52.5	5 34.3	38 51.5	41 18.2
2706	" . . .	2	3 June 2	38 0.6	51.0	15 46 54.8	5 34.4	38 51.6	41 20.4
2707*	" . . .	2	3 June 3	38 0.6	51.0	15 46 58.9	5 34.5	38 51.6	41 24.4
2708	" . . .		3 July 10	37 59.8	51.5	15 46 58.5	5 36.1	38 51.3	41 22.2
2709	55 (Hev.) Ur. Maj.	6	3 April 27	38 25.2	51.2	36 8 10.1	5 36.7	11 39 16.4	+36 2 33.4
2710	" . . .	6	3 April 28	38 25.3	51.2	36 8 5.8	5 36.9	39 16.5	2 28.9
2711	" . . .	6	3 April 30	38 25.1	51.2	36 8 13.8	5 37.2	39 16.3	2 36.6
2712	Lalande 22334 .	9	3 April 28	38 54.2	51.1	35 59 44.7	5 36.9	11 39 45.3	+35 54 7.8
2713	" . . .	9	3 April 30	38 54.4	51.1	35 59 45.	5 37.2	39 45.5	54 8.
2714	5 Virginis β		3 Feb. 18	39 25.6	50.6	2 59 4.8	5 29.9	11 40 16.2	+ 2 53 34.9
2715	" . . .		3 Feb. 19	39 24.9	50.6	2 59 4.1	5 29.8	40 15.5	53 34.3
2716*	" . . .		3 Feb. 26	39 25.1	50.5	2 59 6.0	5 29.1	40 15.6	53 36.9
2717	" . . .		3 Mar. 18	39 25.0	50.3	2 59 7.7	5 27.9	40 15.3	53 39.8
2718	" . . .		3 April 2	39 24.8	50.3	2 59 7.2	5 27.8	40 15.1	53 39.4
2719	" . . .		3 April 3	(39)		2 59 2.6	5 27.7	(40)	53 34.9
2720*	" . . .		3 April 29	39 24.3	50.4	2 59 3.2	5 28.3	40 14.7	53 34.9
2721	" . . .	3	3 May 16	39 25.4	50.5	2 59 1.6	5 29.1	40 15.9	53 32.5
2722	" . . .		3 May 20	(39)		2 59 5.5	5 29.5	(40)	53 36.0
2723	" . . .		3 May 31	39 25.1	50.6	2 59 0.3	5 29.9	40 15.7	53 30.4
2724	" . . .		3 June 2	(39)		2 59 1.9	5 30.1	(40)	53 31.8
2725	Anonyma . . .	7	3 May 1	39 48.3	50.6	13 28 52.9	5 31.3	11 40 38.9	+13 23 21.6
2726	" . . .	6	3 May 2	39 48.5	50.6	13 28 55.3	5 31.4	40 39.1	23 23.9
2727	" . . .	7	3 May 9	39 48.0	50.7	13 28 53.3	5 31.9	40 38.7	23 21.4
2728	" . . .	6	5 April 26	39 55.4	44.8	13 28 8.8	4 46.5	40 40.2	23 22.3
2729	Lalande 22360 .	6	5 Mar. 30	40 0.1	44.0	34 33 57.4	4 47.5	11 40 44.1	+34 29 9.9
2730	Lalande 22366 .	8.9	3 April 25	40 19.3	50.5	13 0 31.5	5 30.7	11 41 9.8	+12 55 0.8
2731*	" . . .	7.8	3 May 9	40 19.7	50.6	13 0 39.6	5 31.9	41 10.3	55 7.7
2732	" . . .	7.8	5 April 26	40 26.5	43.8	12 59 52.7	4 46.5	41 10.3	55 6.2
†2733		6.7	5 April 10	40 34.3	44.1	9 14 46.1	4 50.2	11 41 18.4	+ 9 9 55.9
2734	1830 Groombridge	7	3 April 27	40 27.4	51.0	39 16 25.7	5 37.7	11 41 18.4	+39 10 48.0
2735	" . . .	7	3 April 28	40 27.2	51.1	39 16 27.0	5 37.9	41 18.3	10 49.1
2736	" . . .	6.7	5 April 29	40 34.6	44.2	39 15 32.1	4 53.7	41 18.8	10 38.4
2737	Lalande 22390 .		3 April 12	41 21.5	50.6	21 36 49.0	5 31.3	11 42 12.1	+21 31 17.7
2738	Johnson 2755 .	8	3 April 26	41 39.0	51.1	47 45 51.6	5 39.6	11 42 30.1	+47 40 12.0
2739	Piazzi 176 . .	7	5 Mar. 30	42 40.0	43.8	34 48 34.1	4 47.6	11 43 23.8	+34 43 46.5
2740	" . . .	7	5 April 10	42 40.6	43.9	34 48 39.2	4 49.4	43 24.5	43 49.8
2741	Flamsteed, B.1862	7.8	3 April 27	42 34.2	50.9	42 7 21.5	5 38.4	11 43 25.1	+42 1 43.1
2742	" . . .	7.8	3 April 28	42 33.9	50.9	42 7 24.4	5 38.6	43 24.8	1 45.8
2743	" . . .	7	3 April 30	42 33.9	50.9	42 7 25.2	5 39.0	43 24.8	1 46.2
2744	Lalande 22414 .	10	3 Mar. 18	42 32.1	50.4	9 46 32.6	5 28.4	11 43 22.5	+ 9 41 4.2
2745	" . . .	9.10	3 April 3	42 33.0	50.4	9 46 25.4	5 28.7	43 23.4	40 56.7
2746	" . . .	8.9	3 May 2	42 33.1	50.5	9 46 34.8	5 30.5	43 23.6	41 4.3
2747	65 Ursæ Maj. pr.	7	3 April 26	43 47.3	50.9	47 41 3.9	5 39.7	11 44 38.2	+47 35 24.2
2748	" . . .	6	3 April 29	43 48.3	50.9	47 41 5.4	5 40.2	44 39.2	35 25.2
2749	" . . .	7	3 May 9	43 47.4	51.0	47 41 6.3	5 42.0	44 38.4	35 24.3
2750	" . . .	7	5 April 29	11 43 54.7	+ 44.1	+47 40 20.1	— 4 55.9	11 44 38.8	+47 35 24.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2751	65 Ursæ Maj. foll.	7	5 April 29	11 44 0.9	+ 44.0	+47 39 59.1	— 4 55.9	11 44 44.9	+47 35 3.2
2752*	6 Virginis A		3 Feb. 19	43 54.8	50.7	9 38 49.8	5 29.1	11 44 45.5	+ 9 33 20.7
2753	" . . .		3 Mar. 18	43 55.3	50.4	9 38 50.9	5 28.5	44 45.7	33 22.4
2754	" . . .		3 April 3	43 56.0	50.3	9 38 46.7	5 28.8	44 46.3	33 17.9
2755	" . . .		3 April 13	43 55.7	50.4	9 38 48.8	5 29.2	44 46.1	33 19.6
2756	" . . .		3 April 25	43 55.6	50.4	9 38 47.9	5 30.1	44 46.0	33 17.8
2757	" . . .		3 May 2	43 55.5	50.4	9 38 54.8	5 30.5	44 45.9	33 24.3
2758	Lalande 22455 .	6	3 May 13	44 14.4	50.8	26 43 44.1	5 36.6	11 45 5.2	+26 38 7.5
2759	" . . .	7	3 May 16	44 14.5	50.8	26 43 43.3	5 38.0	45 5.3	38 5.3
2760	491 Mayer . .		3 April 19	44 19.7	51.3	2 18 10.5	5 28.2	11 45 11.0	+ 2 12 42.3
2761	" . . .	7.8	5 April 26	44 26.7	43.5	2 17 28.1	4 44.0	45 10.2	12 44.1
2762	95 Leonis o	7	3 April 16	44 31.9	50.4	16 51 7.5	5 30.9	11 45 22.3	+16 45 36.6
2763	Groombridge 1836	7.6	3 April 27	44 49.3	50.7	41 51 26.1	5 38.4	11 45 40.0	+41 45 47.7
2764*	" . . .	8	3 April 28	44 49.7	50.7	41 51 21.9	5 38.7	45 40.4	45 43.2
2765	" . . .	7.8	3 April 30	44 48.7	50.7	41 51 26.8	5 38.8	45 39.4	45 48.0
2766	Piazzi 195 . .	6	5 Mar. 30	45 13.5	43.7	36 38 23.0	4 47.9	11 45 57.2	+36 33 35.1
2767	Groombridge 1841	7.6	3 April 27	46 4.2	50.6	41 33 14.7	5 38.4	11 46 54.8	+41 27 36.3
2768*	" . . .	6.7	3 April 28	46 3.9	50.6	41 33 13.5	5 38.7	46 54.5	27 34.8
2769	" . . .	7.6	3 April 30	46 4.4	50.6	41 33 16.7	5 38.9	46 55.0	27 35.8
2770	" . . .	7	5 April 10	46 11.1	43.6	41 32 35.0	4 50.8	46 54.7	27 44.2
2771	Piazzi 201 . .	8.9	3 April 25	46 39.4	50.3	8 10 54.0	5 29.8	11 47 29.7	+ 8 5 24.2
2772	" . . .	8	3 May 2	46 39.2	50.4	8 11 1.3	5 30.2	47 29.6	5 31.1
2773	Lalande 22534 .	6	3 May 13	46 59.2	50.7	33 29 5.3	5 38.8	11 47 49.9	+33 23 26.5
2774	" . . .	6	3 May 16	46 58.0	50.7	33 29 7.4	5 39.1	47 48.7	23 28.3
2775	492 Mayer . .	7	3 Mar. 18	47 8.3	50.3	4 41 12.8	5 28.4	11 47 58.6	+ 4 35 44.4
2776	" . . .	6.7	3 April 3	47 8.8	50.2	4 41 12.2	5 28.3	47 59.0	35 43.9
2777	" . . .	6.7	3 April 4	47 8.8	50.2	4 41 13.6	5 28.3	47 59.0	35 45.3
2778	" . . .	7	3 May 9	47 8.0	50.4	4 41 15.9	5 29 8	47 58.4	35 50.1
2779	" . . .	7	5 April 26	47 15.2	43.5	4 40 36.1	4 44.7	47 58.7	35 51.4
2780	493 Mayer . .	7	3 May 1	47 59.2	50.3	1 44 4.2	5 28.6	11 48 49.5	+ 1 38 35.6
2781	Lalande 22566,7 .	6.7	3 May 16	48 48.9	50.6	35 14 26.1	5 39.7	11 49 39.5	+35 8 46.4
2782	" . . .	7	5 April 29	48 56.0	43.6	35 13 41.4	4 52.9	49 39.6	8 48.5
2783	7 Virginis b		3 Feb. 19	48 51.7	50.6	4 51 41.3	5 29.9	11 49 42.3	+ 4 46 11.4
2784	" . . .	7	3 Mar. 18	48 52.6	50.3	4 51 39.1	5 28.5	49 42.9	46 10.6
2785	" . . .		3 April 3	48 52.5	50.2	4 51 37.5	5 28.4	49 42.7	46 9.1
2786	" . . .		3 April 13	48 52.1	50.2	4 51 37.5	5 28.8	49 42.3	46 8.7
2787	" . . .	7	3 May 9	48 51.4	50.4	4 51 41.0	5 29.9	49 41.8	46 11.1
2788	" . . .	6	5 April 26	48 58.8	43.5	4 50 58.5	4 44.9	49 42.3	46 13.6
2789	Lalande 22574 .	7.8	5 Mar. 30	49 8.2	43.5	37 55 18.3	4 48.0	11 49 51.7	+37 50 30.3
2790	" . . .	8.9	5 April 10	49 7.7	43.5	37 55 30.0	4 50.0	49 51.2	50 40.0
2791	Johnson 2783 .	8	3 April 26	49 14.1	50.2	45 50 16.0	5 39.2	11 50 4.3	+45 44 36.8
2792	" . . .	8	3 April 27	49 14.6	50.3	45 50 12.2	5 39.4	50 4.9	44 32.8
2793*	" . . .	8.9	3 April 28	49 13.9	50.3	45 50 12.9	5 39.6	50 4.2	44 33.3
2794*	" . . .	8	3 April 30	49 14.3	50.3	45 50 18.7	5 40.0	50 4.6	44 38.7
2795	8 Virginis π		3 April 16	49 47.1	50.2	7 49 19.3	5 29.3	11 50 37.3	+ 7 43 50.0
2796	" . . .		3 April 19	49 47.2	50.2	7 49 16.2	5 29.5	50 37.4	43 46.7
2797	" . . .		3 April 25	49 46.7	50.3	7 49 14.5	5 29.9	50 37.0	43 44.6
2798	" . . .		3 May 2	49 46.9	50.3	7 49 19.3	5 30.2	50 37.2	43 49.1
2799	" . . .		3 May 20	49 47.1	50.5	7 49 18.5	5 31.5	50 37.6	43 47.0
2800	Lalande 22612,3 .	6	3 May 13	50 33.1	50.4	37 15 20.9	5 39.9	11 51 23.5	+37 9 41.0
2801	" . . .	6.5	3 May 16	50 33.2	50.4	37 15 21.3	5 40.3	51 23.6	9 41.0
2802	1 Comæ . . .	7	3 April 29	50 38.1	50.3	23 18 4.9	5 34.2	11 51 28.4	+23 12 30.7
2803	67 Ursæ Majoris		3 April 26	51 5.4	50.1	44 15 0.8	5 38.8	11 51 55.5	+44 9 22.0
2804	" . . .	6	3 April 27	51 5.7	50.1	44 15 0.7	5 39.0	51 55.8	9 21.7
2805	" . . .		3 April 28	51 5.3	50.1	44 14 54.7	5 39.2	51 55.4	9 15.5
2806	" . . .	6	3 April 30	51 5.4	50.1	44 15 4.6	5 39.6	51 55.5	9 25.0
2807	" . . .	6.7	5 April 10	51 11.6	43.2	44 14 14.1	4 51.2	51 54.8	9 22.9
2808	Piazzi 218 . .	6.7	3 April 26	51 28.1	50.0	44 19 27.8	5 38.8	11 52 18.1	+44 13 49.0
2809*	" . . .	7	3 April 28	51 28.6	50.1	44 19 22.7	5 39.2	52 18.7	13 43.5
2810	" . . .	7	3 April 30	11 51 28.6	+ 50.1	+44 19 30.6	— 5 39.6	11 52 18.7	+44 13 51.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0. α	Mean equinox 1800.0. δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2811	Lalande 22655 .	7	3 May 13	11 52 28.1	+ 50.3	+30 53 18.7	— 5 38.0	11 53 18.4	+30 47 40.7
2812	" . . .	7.8	3 May 16	52 27.3	50.3	30 53 17.9	5 38.4	53 17.6	47 39.5
2813	497 Mayer . .	7	3 April 16	52 41.8	50.2	6 46 8.9	5 29.2	11 53 32.0	+ 6 40 39.7
2814	" . . .	7.6	5 April 29	52 48.3	43.5	6 45 20.5	4 45.6	53 31.8	40 34.9
2815	2 Comæ . . .		3 April 29	53 11.1	50.2	22 39 57.5	5 33.9	11 54 1.3	+22 34 23.6
2816	9 Virginis o		3 Feb. 19	54 10.1	50.6	9 56 8.0	5 29.2	11 55 0.7	+ 9 50 38.8
2817	" . . .		3 April 3	54 10.8	50.2	9 56 6.7	5 29.0	55 1.0	50 37.7
2818*	" . . .		3 April 4	54 11.2	50.2	9 56 8.1	5 29.0	55 1.4	50 39.1
2819	" . .		3 April 25	54 11.2	50.2	9 56 3.6	5 30.4	55 1.4	50 33.2
2820	" . . .		3 May 9	54 9.8	50.3	9 56 9.1	5 31.4	55 0.1	50 37.7
2821	" . . .		3 May 20	54 8.9	50.4	9 56 6.9	5 32.3	54 59.3	50 34.6
2822	Lalande 22717 .	8	3 May 16	54 56.4	50.2	24 24 45.1	5 36.4	11 55 46.6	+24 19 8.7
2823	Piazzi 232 . .	9	3 April 30	55 18.6	49.6	47 29 39.3	5 40.2	11 56 8.2	+47 23 59.1
2824*	" . . .	7.8	5 Mar. 30	55 23.8	42.7	47 28 42.9	4 49.1	56 6.5	23 53.8
2825*	Lalande 22750 .	9.8	3 April 28	56 19.7	49.6	44 18 13.5	5 39.0	11 57 9.3	+44 12 34.5
2826	Lalande 22754 .	8.	3 May 13	56 25.7	50.1	24 14 57.0	5 35.9	11 57 15.8	+24 9 21.1
2827	500 Mayer . .	7	3 April 16	56 56.4	50.2	1 49 53.1	5 28.3	11 57 46.6	+ 1 44 24.8
2828	Lalande 22762 .	9.10	3 April 4	56 59.3	50.1	7 14 28.9	5 28.6	11 57 49.4	+ 7 9 0.3
2829	" . . .	8.9	3 April 29	56 59.1	50.2	7 14 35.2	5 30.0	57 49.3	9 5.2
2830	" . . .	8	3 May 2	56 59.2	50.2	7 14 36.3	5 30.1	57 49.4	9 6.2
2831	" . . .	10.11	5 April 29	57 4.4	43.4	7 13 47.2	4 45.6	57 47.8	9 1.6
2832	Lalande 22768 .	7	3 April 26	57 8.9	49.6	40 51 53.0	5 37.6	11 57 58.5	+40 46 15.4
2833*	" . . .	7.8	3 April 27	57 8.6	49.6	40 51 51.2	5 37.4	57 58.2	46 13.8
2834*	" . . .	7.8	3 April 28	57 9.1	49.6	40 51 49.4	5 37.2	57 58.7	46 12.2
2835	" . . .	8.9	3 April 30	57 8.6	49.6	40 51 50.8	5 36.5	57 58.2	46 14.3
2836	10 Virginis r	7	3 Feb. 19	58 35.9	50.6	3 6 54.6	5 30.2	11 59 26.5	+ 3 1 24.4
2837	" . . .		3 Feb. 26	58 36.2	50.4	3 6 50.9	5 29.6	59 26.6	1 21.3
2838	" . . .		3 April 3	58 36.6	50.1	3 6 47.1	5 28.2	59 26.7	1 18.9
2839	" . . .		3 April 4	58 36.1	50.2	3 6 49.0	5 28.2	59 26.3	1 20.8
2840	" . . .		3 April 16	58 36.4	50.2	3 6 51.8	5 28.4	59 26.6	1 23.4
2841*	" . . .		3 May 9	58 35.7	50.2	3 6 47.3	5 29.4	59 25.9	1 17.9
2842	" . . .	6.7	5 April 29	58 42.6	43.4	+ 3 6 6.0	4 44.6	59 26.0	1 21.4
2843	2 Corvi ε		3 May 31	59 1.2	50.6	—21 25 2.5	5 22.7	11 59 51.8	—21 30 25.2
2844	11 Virginis s	7	3 Feb. 19	59 1.3	50.5	+ 7 0 41.6	5 29.6	11 59 51.8	+ 6 55 12.0
2845	" . . .		3 April 3	59 1.8	50.1	7 0 39.2	5 28.6	59 51.9	55 10.6
2846*	" . . .	5	3 April 25	59 1.2	50.1	7 0 40.1	5 29.6	59 51.3	55 10.5
2847	" . . .	6	5 April 10	59 8.4	43.3	6 59 58.5	4 44.5	59 51.7	55 14.0
2848	3 Comæ . . .		3 April 29	59 29.0	50.0	18 0 55.7	5 32.5	12 0 19.0	+17 55 23.2
2849	Flamsteed, B.1681	6	3 May 13	59 45.5	49.9	28 29 19.3	5 37.0	12 0 35.4	+28 23 42.3
2850	" . . .	6.5	3 May 16	59 45.7	49.9	28 29 20.6	5 37.4	0 35.6	23 43.2
2851	" . . .	6	5 May 30	59 52.9	43.0	28 28 27.8	4 46.3	0 35.9	23 41.5
2852	Lalande 22846 .	7	3 April 26	59 50.0	49.3	41 5 59.8	5 37.6	12 0 39.3	+41 0 22.2
2853	" . . .	7	3 April 27	59 50.0	49.4	41 5 55.5	5 37.8	0 39.4	0 17.7
2854	" . . .	7	3 April 28	59 50.2	49.4	41 5 54.8	5 38.0	0 39.6	0 16.8
2855*	" . . .	7.8	3 April 30	11 59 50.1	49.4	41 6 0.4	5 38.3	0 39.5	0 22.1
2856	Piazzi 6 . . .	7	5 April 29	12 0 43.2	43.4	5 14 55.5	4 45.1	12 1 26.6	+ 5 10 10.4
2857	4 Comæ . .		3 May 9	0 50.9	49.8	27 4 43.6	5 36.0	12 1 40.7	+26 59 7.6
2858	" . . .		3 May 20	0 50.7	49.8	27 4 48.7	5 37.5	1 40.5	59 11.2
2859	Lalande 22887 .	9.10	3 April 4	1 14.9	50.1	7 4 45.2	5 28.5	12 2 5.0	+ 6 59 16.8
2860	" . . .	9	3 May 2	1 14.5	50.1	7 4 54.9	5 30.0	2 4.6	59 24.9
2861	12 Virginis ξ		3 Feb. 26	2 23.5	50.3	11 28 0.7	5 28.4	12 3 13.8	+11 22 32.3
2862	" . . .		3 April 3	2 23.8	50.0	11 27 58.4	5 28.8	3 13.8	22 29.6
2863	Lalande 22914 .	8	3 April 3	2 26.0	50.0	11 15 47.0	5 28.8	12 3 16.0	+11 10 18.2
2864	Anonyma . .	9	3 Feb. 19	2 48.1	50.6	0 33 49.5	5 30.5	12 3 38.7	+ 0 28 19.0
2865	Lalande 22944 .	7	5 Mar. 30	3 35.0	42.9	24 51 46.1	4 45.5	12 4 17.9	+24 47 0.6
2866	Lalande 22946 .	7	3 April 28	3 31.2	48.6	48 15 6.4	5 39.2	12 4 19.8	+48 9 27.2
2867	" . .		3 April 30	3 31.3	48.6	48 15 15.2	5 39.7	4 19.9	9 35.5
2868	Lalande 22948 .	7.8	3 May 16	3 42.7	49.3	40 33 3.2	5 40.4	12 4 32.0	+40 27 22.8
2869*	Lalande 22949 .	7	3 April 28	3 49.6	48.5	48 (8)		12 4 38.1	+48 (8)
2870	Lalande 22963 .	7.8	3 April 26	12 4 26.1	+ 48.5	+48 19 26.6	— 5 38.7	12 5 14.6	+48 13 47.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2871	Lalande 22963 .		3 April 27	12 4 25.8	+ 48.5	+48 19 23.3	— 5 38.9	12 5 14.3	+48 13 44.4
2872	"		3 April 28	4 26.3	48.5	48 19 17.4	5 39.1	5 14.8	13 38.3
2873	"		3 April 30	4 25.3	48.5	48 19 29.2	5 39.5	5 13.8	13 49.7
2874*	"	7	3 May 9	4 26.1	48.7	48 19 25.6	5 41.3	5 14.8	13 44.3
2875	"	7.8	3 May 13	4 26.3	48.7	48 19 24.8	5 42.0	5 15.0	13 42.8
2876*	"	7	5 April 10	4 33.2	41.8	+48 18 35.3	4 50.9	5 15.0	13 44.4
2877	4 Corvi γ		3 May 31	4 41.7	50.7	—16 20 29.4	5 24.1	12 5 32.4	—16 25 53.5
2878	"		3 June 2	4 41.8	50.7	—16 20 28.7	5 24.1	5 32.5	25 52.8
2879	6 Comæ . . .		3 April 29	5 0.7	49.8	+16 6 19.6	5 31.7	12 5 50.5	+16 0 47.9
2880	7 Comæ . . .		3 April 4	5 22.7	49.5	25 8 59.9	5 30.3	12 6 12.2	+25 3 29.6
2881*	"		3 May 20	5 22.5	49.7	25 9 7.3	5 36.5	6 12.2	3 30.8
2882	"	5.6	5 Mar. 30	5 29.4	42.8	25 8 15.5	4 45.4	6 12.2	3 30.1
2883	Lalande 23002 .	8.9	3 May 16	5 50.7	49.1	40 47 58.9	5 40.3	12 6 39.8	+40 42 18.6
2884	"	8.9	5 April 29	5 57.3	42.3	40 47 11.9	4 53.3	6 39.6	42 18.6
2885	Piazzi 34 . . .	7.8	3 May 9	7 4.7	49.7	+19 38 26.1	5 33.4	12 7 54.4	+19 32 52.7
2886*	Flamsteed, B.1703	8	3 April 16	7 25.7	50.3	— 7 41 50.8	5 26.4	12 8 16.0	— 7 47 17.2
2887	13 Virginis n		3 Feb. 19	7 34.8	50.6	+ 0 25 3.1	5 30.1	12 8 25.4	+ 0 19 33.0
2888*	"		3 Feb. 26	7 35.1	50.5	0 25 2.9	5 29.4	8 25.6	19 33.5
2889	"		3 Mar. 18	7 34.7	50.2	0 25 4.7	5 27.9	8 24.9	19 36.8
2890*	"		3 April 3	7 35.3	50.2	0 25 2.0	5 27.4	8 25.5	19 34.6
2891	"		3 April 4	7 34.8	50.2	0 25 10.1	5 27.4	8 25.0	19 42.7
2892	"	6	3 May 1	7 35.2	50.2	0 25 0.5	5 27.8	8 25.4	19 32.7
2893	Flamsteed, B.1697	7	5 Mar. 30	8 13.6	42.6	+27 12 1.7	4 45.4	12 8 56.2	+27 7 16.3
2894	14 Virginis . .	9	3 April 16	8 13.1	50.0	— 7 42 42.1	5 26.3	12 9 3.1	— 7 48 8.4
2895	"	7	3 April 29	8 13.2	50.0	— 7 42 36.4	5 26.1	9 3.2	48 2.5
2896	Bessel, W.243 .	7.8	3 April 26	8 16.8	48.6	+41 31 7.5	5 36.7	12 9 5.4	+41 25 30.8
2897	"	7	3 April 27	8 18.1	48.6	41 31 0.3	5 36.9	9 6.7	25 23.4
2898	"	7	3 April 28	8 18.0	48.6	41 30 56.4	5 37.1	9 6.6	25 19.3
2899*	"	8	3 April 30	8 17.6	48.6	41 31 9.2	5 37.5	9 6.2	25 31.7
2900	"	8	3 May 16	8 17.3	48.8	41 31 6.1	5 40.2	9 6.1	25 25.9
2901	8 Comæ . . .		3 May 13	8 22.4	49.6	24 14 21.0	5 34.9	12 9 12.0	+24 8 46.1
2902	15 Virginis η		3 Feb. 19	8 49.9	50.6	0 32 16.3	5 29.9	12 9 40.5	+ 0 26 46.4
2903	"		3 Feb. 26	8 50.2	50.5	0 32 14.6	5 29.2	9 40.7	26 45.4
2904	"		3 Mar. 18	8 50.1	50.2	0 32 20.4	5 27.8	9 40.3	26 52.6
2905	"		3 April 3	8 50.6	50.2	0 32 13.3	5 27.2	9 40.8	26 46.1
2906	"		3 April 4	8 50.8	50.2	0 32 14.0	5 27.2	9 41.0	26 46.8
2907	"		3 May 1	8 50.2	50.2	0 32 12.2	5 27.6	9 40.4	26 44.6
2908	16 Virginis c		3 May 9	9 21.7	50.1	4 31 9.2	5 29.1	12 10 11.8	+ 4 25 40.1
2909	Flamsteed, B.1709	7.6	5 Mar. 30	9 31.5	42.6	27 11 29.4	4 45.2	12 10 14.1	+27 6 44.2
2910	Bessel, W.278,9 .	7.8	5 April 10	9 53.3	42.5	28 15 10.7	4 46.9	12 10 35.8	+28 10 23.8
2911	Piazzi 55 . . .	7	5 April 29	9 57.7	43.0	16 43 57.0	4 47.1	12 10 40.7	+16 39 9.9
2912	Arg. Z., Oel. 12568	7.8	3 April 26	10 20.9	48.0	46 43 17.8	5 37.6	12 11 8.9	+46 37 40.2
2913	"	7.8	3 April 27	10 22.2	48.0	46 43 15.4	5 37.8	11 10.2	37 37.6
2914*	"	7.8	3 April 28	10 21.7	48.0	46 43 15.3	5 38.1	11 9.7	37 37.2
2915*	"	8	3 April 30	10 21.4	48.0	46 43 21.5	5 38.3	11 9.4	37 43.2
2916	Lalande 23154 .	7	3 May 16	11 4.4	49.7	17 56 58.1	5 28.8	12 11 54.1	+17 51 29.3
2917	17 Virginis . .		3 Feb. 26	11 31.6	50.3	6 30 37.8	5 28.1	12 12 21.9	+ 6 25 9.7
2918	"		3 Mar. 18	11 31.8	50.0	6 30 42.0	5 27.3	12 21.8	25 14.7
2919	"	6	3 April 3	11 32.4	50.0	6 30 36.6	5 27.4	12 22.4	25 9.2
2920*	"		3 April 4	11 32.3	50.0	6 30 38.3	5 27.6	12 22.3	25 10.7
2921	"	6	3 April 14	11 32.3	49.9	6 30 38.0	5 27.7	12 22.2	25 10.3
2922	"		3 April 16	11 32.1	49.9	6 30 39.7	5 28.0	12 22.0	25 11.7
2923	"		3 May 2	11 32.1	50.0	6 30 41.5	5 28.9	12 22.1	25 12.6
2924	"		3 May 9	11 31.3	50.0	6 30 39.4	5 29.3	12 21.3	25 10.1
2925	12 Comæ e		3 May 13	11 36.5	49.3	27 2 58.7	5 35.5	12 12 25.8	+26 57 23.2
2926	"	4.5	5 Mar. 30	11 44.1	42.5	27 2 14.0	4 44.8	12 26.6	57 29.2
2927	4 Canum Ven. .	6.7	3 April 26	13 7.1	47.9	43 44 45.8	5 36.4	12 13 55.0	+43 39 9.4
2928	"	5	3 April 27	13 6.8	48.0	43 44 43.3	5 36.6	*13 54.8	39 6.7
2929*	"		3 April 28	13 6.7	48.0	43 44 40.9	5 36.8	13 54.7	39 4.1
2930	"	7	3 April 30	12 13 6.7	+ 48.0	+43 44 48.5	— 5 37.3	12 13 54.7	+43 39 11.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	m s	h m s	° ′ ″
2931	13 Comæ f	.	3 May 13	12 13 26.0	+ 49.2	+27 18 5.2	— 5 35.3	12 14 15.2	+27 12 29.9
2932	" . . .		3 May 20	13 25.9	49.2	27 18 9.2	5 36.2	14 15.1	12 33.0
2933	Lalande 23214,5 .	7	5 Mar. 30	13 41.3	42.4	26 46 19.4	4 44.5	12 14 23.7	+26 41 34.9
†2934	Lalande 23233 .	7	3 April 28	14 16.4	47.8	44 3 16.8	5 36.7	12 15 4.2	+43 57 40.1
2935	Piazzi 75 . . .	6	3 May 16	14 21.0	49.2	25 7 51.0	5 34.9	12 15 10.2	+25 2 16.1
2936	" . . .	6.7	5 April 10	14 27.3	42.4	25 7 5.8	4 45.7	15 9.7	2 20.1
2937	Piazzi 77 . . .	8	3 April 29	14 52.5	50.0	5 24 2.3	5 28.0	12 15 42.5	+ 5 18 34.3
2938*	Lalande 23252 .	7.8	3 April 14	14 57.9	50.0	3 14 31.8	5 26.9	12 15 47.9	+ 3 9 4.9
2939	" . . .	8	3 May 9	14 57.7	50.1	3 14 33.4	5 28.1	15 47.8	9 5.3
2940	Piazzi 78 . . .	7	3 April 16	15 6.8	49.5	17 3 54.7	5 29.3	12 15 56.3	+16 58 25.4
2941	" . . .	7	3 May 1	15 6.4	49.5	17 3 52.2	5 30.7	15 55.9	58 21.5
2942	" . . .	7	3 May 2	15 6.4	49.5	17 3 53.9	5 30.9	15 55.9	58 23.0
2943	6 Canum Ven. . .	6	3 April 26	15 9.7	48.1	40 13 25.1	5 35.3	12 15 57.8	+40 7 49.8
2944	" . . .	6	3 April 27	15 10.0	48.1	40 13 23.7	5 35.5	15 58.1	7 48.2
2945	15 Comæ c		3 April 28	16 8.6	48.8	29 28 26.2	5 33.1	12 16 57.4	+29 22 53.1
2946	16 Comæ a		3 May 31	16 9.0	49.1	28 1 39.9	5 37.3	12 16 58.1	+27 56 2.6
2947	" . . .		3 June 2	16 8.8	49.1	28 1 42.1	5 37.5	16 57.9	56 4.6
2948	" . . .	6	5 Mar. 30	16 15.5	42.2	28 0 49.4	4 44.3	16 57.7	56 5.1
2949	Lalande 23292 .	9.10	3 April 3	16 37.7	49.6	13 17 57.5	5 34.3	12 17 27.3	+13 12 23.2
2950	Piazzi 90 . . .	6.7	3 April 28	16 44.3	48.8	+29 18 40.3	5 33.0	12 17 33.1	+29 13 7.3
2951*	510 Mayer . .	6.8	5 April 10	16 51.9	43.5	— 3 25 36.9	4 42.0	12 17 35.4	— 3 30 18.9
2952	Lalande 23311 .	7	3 May 13	16 50.2	50.7	—13 15 8.7	5 23.7	12 17 40.9	—13 20 32.4
2953	Groombridge 1894	7	3 April 30	16 54.7	47.7	+42 33 27.5	5 36.4	12 17 42.4	+42 27 51.1
2954	511 Mayer . .	7	3 May 9	17 16.3	50.0	5 35 50.3	5 28.3	12 18 6.3	+ 5 30 22.0
2955*	Bradley 1671 . .	6.7	3 May 16	17 55.2	48.9	27 (6)	.	12 18 44.1	+27 (1)
2956	17 Comæ d	5	3 May 16	18 5.4	48.9	27 6 50.3	5 34.7	12 18 54.3	+27 1 15.6
2957	" . . .	6	5 Mar. 30	18 12.6	42.2	27 6 3.7	4 51.6	18 54.8	1 12.1
2958	18 Comæ . .		3 May 20	18 36.3	49.0	25 18 33.7	5 34.7	12 19 25.3	+25 12 59.0
2959*	Piazzi 103 . .	6.7	3 Feb. 26	18 51.0	49.8	15 50 54.4	5 25.8	12 19 40.8	+15 45 28.6
2960	" . . .	8.9	3 April 3	18 51.4	49.4	15 50 53.0	5 27.1	19 40.8	45 25.9
2961	" . . .	7	3 April 4	18 51.6	49.4	15 50 52.8	5 27.2	19 41.0	45 25.6
2962	" . . .	8	3 April 14	18 51.7	49.4	15 50 54.9	5 28.1	19 41.1	45 26.8
2963	" . . .	6.7	3 April 29	18 51.6	49.4	15 50 58.0	5 29.7	19 41.0	45 28.3
2964	" . . .	6	3 May 2	18 51.2	49.4	+15 50 59.5	5 29.9	19 40.6	45 29.6
2965	512 Mayer . .	7	3 May 13	18 56.3	50.7	—12 11 38.0	5 23.7	12 19 47.0	—12 17 1.7
2966	Taylor 6649 . .	7.8	3 April 16	19 34.4	49.6	+10 55 1.3	5 27.3	12 20 24.0	+10 49 34.0
2967	" . . .	8	3 May 1	19 34.2	49.6	10 55 1.0	5 28.1	20 23.8	49 32.9
2968	Lalande 23384,5 .	7.8	3 April 27	19 37.2	47.7	40 27 10.4	5 34.7	12 20 24.9	+40 21 35.7
2969	" . . .		3 April 28	19 37.7	47.7	40 27 10.1	5 34.9	20 25.4	21 35.2
2970	" . . .	8	3 April 30	19 37.4	47.7	40 27 20.1	5 35.2	20 25.1	21 44.9
2971	21 Comæ g		3 May 16	20 11.4	48.9	25 46 3.0	5 34.0	12 21 0.3	+25 40 29.0
2972	" . . .		3 May 20	20 10.8	48.9	25 46 3.9	5 34.5	20 59.7	40 29.4
2973	Lalande 23398 .	6	3 May 17	20 11.8	49.4	17 48 51.6	5 31.9	12 21 1.2	+17 43 19.7
2974	Groombridge 1902	7	3 April 26	20 27.8	47.6	40 46 56.8	5 34.4	12 21 15.4	+40 41 22.4
2975*	" . . .	7	3 April 27	20 27.9	47.6	40 46 56.4	5 34.6	21 15.5	41 21.8
2976*	" . . .		3 April 28	20 27.5	47.6	40 46 48.6	5 34.8	21 15.1	41 13.8
2977	" . . .	7	3 April 30	20 27.6	47.6	40 47 1.5	5 35.2	21 15.2	41 26.3
2978	Lalande 23422 .	8	5 Mar. 30	20 53.6	42.0	28 15 9.0	4 43.3	12 21 35.6	+28 10 35.7
2979	20 Virginis . .	7	3 April 3	22 5.1	49.6	11 29 27.0	5 26.1	12 22 54.7	+11 24 0.9
2980*	" . . .	6	3 April 4	22 5.1	49.6	11 29 31.9	5 26.3	22 54.7	24 5.6
2981	" . . .		3 April 14	22 5.0	49.5	11 29 33.8	5 26.7	22 54.5	24 7.1
2982	" . . .		3 May 17	22 6.1	49.6	+11 29 29.5	5 29.7	22 55.7	23 59.8
2983	Lalande 23463 .	6	3 May 13	22 21.8	50.8	—11 38 22.3	5 23.4	12 23 12.6	—11 43 45.7
2984*	Lalande 23464 .	7	3 April 29	22 26.0	49.7	+ 9 8 46.2	5 27.5	12 23 15.7	+ 9 3 18.7
†2985			3 May 2	22 31.0	49.5	11 52 27.9	5 28.2	12 23 20.5	+11 46 59.7
2986	Piazzi 118 . .	6	3 April 29	22 34.5	49.7	8 52 18.8	5 27.4	12 23 24.2	+ 8 46 51.4
2987	" . . .	7	3 May 1	22 34.3	49.7	8 52 21.8	5 27.5	23 24.0	46 54.3
2988	Lalande 23469 .	7.8	3 May 9	22 35.5	49.9	+ 5 25 2.5	5 27.3	12 23 25.4	+ 5 19 35.2
2989	22 Virginis q		3 Feb. 19	22 37.1	51.1	— 8 15 19.7	5 29.9	12 23 28.2	— 8 20 49.6
2990	22 Comæ . . .		3 May 16	12 22 46.1	+ 48.8	+25 28 52.6	— 5 33.4	12 23 34.9	+25 23 19.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
2991	8 Canum Ven. .	5	3 April 26	12 23 27.2	+ 47.1	+42 32 15.8	— 5 34.2	12 24 14.3	+42 26 41.6
2992	" . . .		3 April 27	23 27.1	47.1	42 32 16.5	5 34.4	24 14.2	26 42.1
2993	" . . .		3 April 28	23 26.7	47.1	42 32 10.9	5 34.6	24 13.8	26 36.3
2994*	" . . .	5	3 April 30	23 27.1	47.1	42 32 18.0	5 34.9	24 14.2	26 43.1
2995	" . . .		3 June 2	23 26.5	47.5	42 32 21.6	5 40.4	24 14.0	26 41.2
2996	Piazzi 127 . .	6	3 April 29	23 30.1	49.7	8 55 57.4	5 27.2	12 24 19.8	+ 8 50 30.2
2997	" . . .	7	3 May 1	23 30.4	49.7	8 55 59.5	5 27.4	24 20.1	50 32.1
2998	" . . .		3 May 2	23 30.5	49.7	8 56	5 27.5	24 20.2	50
2999	" . . .	6	3 May 17	23 30.1	49.8	8 55 54.8	5 28.8	24 19.9	50 26.0
3000	23 Comæ κ		3 June 3	24 2.8	49.0	23 49 30.9	5 34.8	12 24 51.8	+23 43 56.1
3001	Lalande 23520 .	7	3 May 9	24 5.7	49.7	8 38 35.0	5 27.8	12 24 55.4	+ 8 33 7.2
3002	24 Comæ . .	5	5 Mar. 30	24 22.7	42.4	+19 33 28.5	4 42.1	12 25 5.1	+19 28 46.4
3003	Lalande 23545 .	7	3 May 13	24 41.0	50.7	—10 52 42.4	5 23.3	12 25 31.7	—10 58 5.7
3004	Groombridge 1907	7.8	3 April 27	25 16.4	47.1	+40 52 50.0	5 33.5	12 26 3.5	+40 47 16.5
3005	" . . .	8	3 April 28	25 16.7	47.1	40 52 53.2	5 33.7	26 3.8	47 19.5
3006	" . . .	8.9	3 April 30	25 15.8	47.1	+40 52 56.0	5 34.1	26 2.9	47 21.9
3007*	25 Virginis f		3 Feb. 19	25 38.8	50.9	— 4 38 8.9	5 28.6	12 26 29.7	— 4 43 37.5
3008	25 Comæ . .		3 May 16	26 6.8	49.1	+18 17 7.3	5 30.7	12 26 55.9	+18 11 36.6
3009	23 Virginis . .	6	3 April 4	26 10.4	49.6	9 59 23.6	5 25.2	12 27 0.0	+ 9 53 58.4
3010	" . . .	6.7	3 April 14	26 11.0	49.5	9 59 26.4	5 25.8	27 0.5	54 0.6
3011	" . . .	6.7	3 May 1	26 9.3	49.6	9 59 25.6	5 27.0	26 58.9	53 58.6
3012	" . . .	6.7	3 May 9	26 9.7	49.6	9 59 23.1	5 27.9	26 59.3	53 55.2
3013	" . . .	6	3 May 17	26 10.3	49.6	9 59 20.8	5 28.4	26 59.3	53 52.4
3014	Lalande 23603 .	7	3 April 29	26 41.4	49.4	11 46 37.3	5 27.5	12 27 30.8	+11 41 9.8
3015	Lalande 23610 .	7	3 April 26	27 8.5	47.1	39 53 1.1	5 32.6	12 27 55.6	+39 47 28.5
3016*	" . . .	7	3 April 27	27 8.3	47.1	39 53 1.4	5 32.8	27 55.4	47 28.6
3017	" . . .	8	3 April 28	27 8.6	47.1	39 53 0.1	5 33.1	27 55.7	47 27.0
3018	Lalande 23625,6 .		3 April 3	27 52.7	50.1	+ 0 20 17.2	5 34.2	12 28 42.8	+ 0 14 43.0
3019	26 Virginis χ	5	3 May 13	28 5.5	50.6	— 6 48 13.0	5 23.4	12 28 56.1	— 6 53 36.4
3020	9 Canum Ven. .		3 April 27	(28)		+42 4 10.8	5 33.0	12(29)	+41 58 37.8
3021	" . . .	7	3 April 30	28 20.6	46.7	42 4 13.9	5 33.6	29 7.3	58 40.3
3022	26 Comæ . . .		3 May 16	28 20.9	48.7	+22 15 22.9	5 31.2	12 29 9.6	+22 9 51.7
3023	519 Mayer . .		3 May 1	28 21.6	50.4	— 4 54 33.4	5 23.5	12 29 12.0	— 4 59 56.9
3024	Lalande 23666 .	7	3 April 28	29 35.6	47.4	+35 21 26.3	5 31.4	12 30 23.0	+35 15 54.9
3025	Lalande 23673 .	7	3 April 14	29 57.2	49.5	10 1 15.6	5 24.8	12 30 46.7	+ 9 55 50.8
3026	" . . .	7	3 May 9	29 55.6	49.5	10 1 18.9	5 27.0	30 45.1	55 51.9
3027	" . . .		3 May 17	29 57.1	49.6	10 1 11.4	5 27.3	30 46.7	55 44.1
3028	27 Virginis . .		3 April 4	30 40.8	49.4	11 36 55.8	5 24.2	12 31 30.2	+11 31 31.6
3029*	" . . .	6	3 April 29	30 39.9	49.4	11 36 57.4	5 26.3	31 29.3	31 31.1
3030*	" . . .		3 May 20	30 41.4	49.4	+11(36)		31 30.8	(31)
3031	29 Virginis γ		3 Feb. 19	30 41.4	50.7	— 0 15 33.9	5 26.5	12 31 32.1	— 0 21 0.4
3032	" . . .		3 Feb. 26	30 42.1	50.6	0 15 33.9	5 25.7	31 32.7	20 59.6
3033	" . . .		3 April 3	30 42.5	50.2	0 15 35.0	5 23.6	31 32.7	20 58.6
3034	" . . .		3 May 1	30 42.0	50.1	0 15 34.9	5 23.8	31 32.1	20 58.7
3035	" . . .		3 May 2	30 42.9	50.1	0 15 31.0	5 23.9	31 33.0	20 54.9
3036	" . . .		3 May 31	30 42.3	50.3	0 15 35.5	5 25.2	31 32.6	21 0.7
3037*	" . . .		3 June 3	30 42.2	50.3	0 15 33.6	5 25.5	31 32.5	20 59.1
3038	28 Virginis . .	8	3 May 13	30 47.0	50.6	— 6 18 38.3	5 22.9	12 31 37.6	— 6 24 1.2
3039*	30 Virginis ρ		3 April 4	30 55.7	49.4	+11 25 51.3	5 24.2	12 31 45.1	+11 20 27.1
3040	" . . .		3 April 29	30 55.0	49.4	11 25 48.8	5 26.1	31 44.4	20 22.7
3041	" . . .		3 May 20	30 56.0	49.5	11 25 49.3	5 28.1	31 45.5	20 21.2
3042	Piazzi 162 . .	6.7	3 April 30	31 49.3	47.4	34 53 9.6	5 30.9	12 32 36.7	+34 47 38.7
3043	" . . .	7.8	5 Mar. 30	31 54.9	41.0	34 52 26.0	4 41.6	32 35.9	47 44.4
3044	Piazzi 164 . .	7.8	3 April 26	32 1.9	45.6	47 4 9.7	5 32.7	12 32 47.5	+46 58 37.0
3045	" . . .	7.8	3 April 27	32 2.4	45.6	47 4 7.4	5 33.0	32 48.0	58 34.4
3046	" . . .	7	3 April 28	32 2.7	45.6	+47 4 4.9	5 33.2	32 48.3	58 31.7
3047	Piazzi 170 . .	7	3 April 14	33 5.5	50.2	— 1 39 12.5	5 22.8	12 33 55.7	— 1 44 35.3
3048	" . . .	7.8	3 May 13	33 5.9	50.3	1 39 19.2	5 23.5	33 56.2	44 42.7
3049	Lalande 23768 .	7	3 May 17	34 10.1	50.4	— 2 42 9.8	5 23.2	12 35 0.5	— 2 47 33.0
3050	Lalande 23780 .	7	5 Mar. 30	12 34 32.6	+ 41.4	+28 34 13.7	— 4 40.4	12 35 14.0	+28 29 33.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3051	32 Virginis d^2		3 Feb. 26	12 34 40.7	+ 49.9	+ 8 51 32.8	— 5 23.2	12 35 30.6	+ 8 46 9.6
3052	" . . .		3 April 3	34 41.5	49.5	8 51 31.4	5 22.9	35 31.0	46 8.5
3053	" . . .		3 April 4	34 41.4	49.5	8 51 31.3	5 22.9	35 30.9	46 8.4
3054	" . . .		3 May 31	34 40.9	49.6	8 51 33.1	5 27.3	35 30.5	46 5.8
3055	10 Canum Ven. .		3 May 16	34 44.4	46.5	40 27 34.9	5 34.5	12 35 30.9	+40 22 0.4
3056	Groombridge 1922	6.5	3 April 28	34 57.1	45.4	46 37 39.0	5 32.2	12 35 42.5	+46 32 6.8
3057	" . . .	6.5	3 April 30	34 57.5	45.4	46 37 45.5	5 32.7	35 42.9	32 12.8
3058	Lalande 23799–802		3 May 20	35 14.2	47.2	34 44 0.8	5 33.4	12 36 1.4	+34 38 27.4
3059	33 Virginis . .		3 April 29	35 22.9	49.3	10 45 10.2	5 24.9	12 36 12.2	+10 39 45.3
3060	" . . .	6.7	3 May 1	35 22.8	49.3	10 45 7.7	5 24.8	36 12.1	39 42.9
3061*	" . . .		3 May 9	35 23.0	49.3	10 45 10.3	5 25.7	36 12.3	39 44.6
3062	27 Comæ . . .		3 June 2	35 49.8	48.9	17 45 47.3	5 30.1	12 36 38.7	+17 40 17.2
3063*	" . . .		3 June 3	35 50.0	48.9	17 45 48.6	5 30.0	36 38.9	40 18.6
3064	Piazzi 180 . .	6.7	3 April 26	36 2.6	49.6	7 8 22.8	5 23.7	12 36 52.2	+ 7 2 59.1
3065	Piazzi 181 . .	6.7	3 May 1	36 5.1	49.4	10 15 3.1	5 24.7	12 36 54.5	+10 9 38.4
3066	34 Virginis . .		3 April 3	36 20.0	49.1	13 8 39.1	5 22.8	12 37 9.1	+13 3 16.3
3067	" . . .		3 April 4	36 20.0	49.1	13 8 41.4	5 22.9	37 9.1	3 18.5
3068	Lalande 23838 .	6.7	3 April 27	36 21.2	48.8	16 46 41.1	5 25.5	12 37 10.0	+16 41 15.6
3069	35 Virginis . .	6.7	3 April 14	36 51.2	49.8	4 45 29.5	5 22.5	12 37 41.0	+ 4 40 7.0
3070	" . . .	6	3 May 17	36 50.8	49.8	4 45 24.9	5 24.4	37 40.6	40 0.5
3071	Lalande 23875 .		3 May 1	37 24.4	49.3	10 17 38.7	5 24.2	12 38 13.7	+10 12 14.5
3072	36 Virginis . .		3 April 3	38 3.5	48.9	15 18 24.5	5 22.3	12 38 52.4	+15 13 2.2
3073	" . . .		3 April 4	38 3.7	48.9	15 18 25.7	5 22.4	38 52.6	13 3.3
3074	" . . .		3 May 31	38 3.6	49.0	15 18 27.6	5 28.3	38 52.6	12 59.3
3075	" . . .	6	5 Mar. 30	38 10.2	42.3	15 17 38.7	4 44.5	38 52.5	12 54.2
3076	30 Comæ . . .	6	3 April 28	38 44.3	47.6	28 44 1.8	5 27.3	12 39 31.9	+28 38 34.5
3077	" . . .	7	3 April 30	38 44.2	47.6	28 44 6.9	5 27.7	39 31.8	38 39.2
3078	" . . .		3 May 16	38 44.3	47.6	28 44 9.3	5 30.2	39 31.9	38 39.1
3079	Lalande 23926 .	7	3 May 20	39 11.9	47.8	27 36 59.0	5 30.4	12 39 59.7	+27 31 28.6
3080	Piazzi 195 . .	7	3 May 13	39 22.5	49.6	+ 7 24 35.2	5 24.1	12 40 12.1	+ 7 19 11.1
3081	524 Mayer . .	6.7	3 April 27	40 9.0	50.8	— 9 9 29.7	5 20.0	12 40 59.8	— 9 14 49.7
3082	Lalande 23954 .	7	3 May 1	40 24.5	49.3	+ 9 23 26.6	5 23.2	12 41 13.8	+ 9 18 3.4
3083	37 Virginis . .	6	3 Feb. 26	40 36.5	50.2	4 14 11.5	5 22.2	12 41 26.7	+ 4 8 49.3
3084	" . . .		3 April 3	40 36.8	49.8	4 14 11.5	5 21.1	41 26.6	8 50.4
3085	" . . .		3 April 4	40 36.6	49.8	4 14 8.0	5 21.1	41 26.4	8 46.9
3086	" . . .	6	3 April 14	40 37.1	49.8	4 14 12.3	5 21.3	41 26.9	8 51.0
3087	" . . .	6	3 April 26	40 36.4	49.7	4 14 9.9	5 21.9	41 26.1	8 48.0
3088	" . . .	6	3 May 17	40 36.5	49.8	4 14 5.6	5 23.2	41 26.3	8 42.4
3089	31 Comæ . . .		3 May 9	41 8.8	47.5	28 43 23.1	5 28.5	12 41 56.3	+28 37 54.6
3090	" . . .		3 May 16	41 8.6	47.5	28 43 24.0	5 29.4	41 56.1	37 54.6
3091	" . . .		3 May 20	41 8.3	47.5	28 43 25.1	5 30.0	41 55.8	37 55.1
3092	" . . .	5.6	5 Mar. 30	41 15.7	41.0	+28 42 41.4	4 38.6	41 56.7	38 2.8
3093	38 Virginis . .		3 Feb. 19	42 6.7	51.0	— 2 22 24.8	5 23.8	12 42 57.7	— 2 27 48.6
3094	" . . .		3 April 3	42 7.6	50.3	2 22 27.3	5 20.4	42 57.9	27 47.7
3095	39 Virginis . .	7	3 April 29	42 23.2	50.7	7 53 4.0	5 19.7	12 43 13.9	— 7 58 23.7
3096*	Lalande 24015,6 .	6.7	3 May 13	42 29.7	50.4	— 3 2 38.9	5 20.7	12 43 20.1	— 3 7 59.6
3097	Lalande 24023 .	9	3 April 28	42 41.0	49.8	+ 5 25 0.5	5 21.9	12 43 30.8	+ 5 19 38.6
3098	41 Virginis . .		3 June 2	42 58.5	49.0	+13 35 54.5	5 26.6	12 43 47.5	+13 30 27.9
3099	40 Virginis ψ		3 April 27	43 7.4	50.8	— 8 21 40.8	5 19.3	12 43 58.2	— 8 27 0.1
3100*	" . . .		3 April 29	43 7.4	50.8	8 21 36.0	5 19.2	43 58.2	26 55.1
3101	" . . .		3 May 17	43 7.1	50.8	— 8 21 39.9	5 19.1	43 57.9	26 59.0
3102	Piazzi 217 . .	7.8	5 Mar. 30	43 29.8	41.0	+27 56 42.6	4 37.8	12 44 10.8	+27 52 4.8
3103	Lalande 24058 .	7	3 May 1	44 10.9	49.7	4 13 26.7	5 21.0	12 45 0.6	+ 4 8 5.7
3104	43 Virginis δ		3 Feb. 19	44 41.9	50.4	4 34 35.3	5 21.4	12 45 32.3	+ 4 29 13.9
3105	" . . .		3 Feb. 26	44 42.0	50.2	4 34 36.5	5 20.8	45 32.2	29 15.7
3106	" . . .		3 April 3	44 42.5	49.7	4 34 34.0	5 19.8	45 32.2	29 14.2
3107	" . . .		3 April 4	44 43.0	49.7	4 34 35.8	5 19.8	45 32.7	29 16.0
3108	" . . .		3 April 14	44 42.2	49.7	4 34 36.9	5 20.0	45 31.9	29 16.9
3109	" . . .		3 April 26	(44)		4 34 37.2	5 20.6	(45)	29 16.6
3110	" . . .		3 April 27	12 44 43.1	+ 49.7	+ 4 34 36.6	— 5 20.6	12 45 32.8	+ 4 29 16.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3111	43 Virginis δ		3 April 28	12 44 42.8	+ 49.7	− 4 34 30.8	− 5 20.7	12 45 32.5	+ 4 29 10.1
3112	" . . .		3 May 1	44 42.1	49.7	4 34 37.4	5 20.8	45 31.8	29 16.6
3113	" . . .		3 May 2	44 42.9	49.7	4 34 41.4	5 20.8	45 32.6	29 20.6
3114	" . . .		3 May 9	44 42.0	49.7	+ 4 34 39.4	5 21.4	45 31.7	29 18.0
3115*	Bessel, W.831,2 .	7	3 May 13	45 6.6	50.4	− 3 41 22.1	5 19.7	12 45 57.0	− 3 46 41.8
3116	Lalande 24097 .	7	5 Mar. 30	45 27.3	40.5	+33 9 56.4	4 37.6	12 46 7.8	+33 5 18.8
3117	12 Can. Ven. foll.		3 June 3	45 51.5	46.9	39 29 41.0	5 33.4	12 46 38.4	+39 24 7.6
3118	12 Can. Ven. pr. .		3 June 2	45 51.9	46.9	+39 29 25.5	5 33.3	12 46 38.8	+39 23 52.2
3119	Lalande 24119 .		3 May 15	46 5.4	50.8	− 7 44 10.0	5 18.5	12 46 56.2	− 7 49 28.5
3120	" . . .	7	3 May 17	46 4.8	50.8	− 7 44 13.7	5 18.4	46 55.6	49 32.1
3121	Lalande 24126 .	8	3 April 4	46 25.6	49.9	+ 2 36 9.6	5 19.2	12 47 15.5	+ 2 30 50.4
3122	Groombridge 1938	7	5 Mar. 30	46		+44 42 50.8	4 38.3	12 47	+44 38 12.5
3123	Lalande 24133–5 .	7	3 May 13	46 43.7	51.3	−13 48 46.3	5 16.8	12 47 35.0	−13 54 3.1
3124	Lalande 24155 .	7.6	3 April 27	47 32.0	50.2	1 43 49.0	5 18.7	12 48 22.2	− 1 49 7.7
3125	" . . .	6	3 April 28	47 32.3	50.2	− 1 43 53.0	5 18.8	48 22.5	49 11.8
3126	36 Comæ . . .		3 May 20	48 13.1	48.3	+18 34 50.7	5 24.8	12 49 1.4	+18 29 25.9
3127	44 Virginis κ		3 Feb. 19	48 31.0	51.0	− 2 38 25.2	5 21.7	12 49 22.0	− 2 43 46.9
3128*	" . . .		3 Feb. 26	48 31.0	50.9	2 38 26.3	5 19.9	49 21.9	43 46.2
3129	" . . .		3 April 3	48 31.8	50.4	2 38 28.5	5 18.4	49 22.2	43 46.9
3130	" . . .		3 April 4	48 32.0	50.4	2 38 26.9	5 18.3	49 22.4	43 45.2
3131	" . . .		3 April 14	48 31.6	50.3	2 38 26.7	5 18.2	49 21.9	43 44.9
3132	" . . .		3 April 26	48 31.7	50.3	2 38 29.0	5 18.2	49 22.0	43 47.2
3133	" . . .		3 May 9	48 31.3	50.3	− 2 38 27.9	5 18.6	49 21.6	43 46.5
3134	Lalande 24186 .		3 May 12	48 36.8	49.0	+11 50 19.4	5 22.0	12 49 25.8	+11 44 57.4
3135	Lalande 24204 .	8	3 May 1	49 14.9	50.8	− 7 55 44.2	5 17.2	12 50 5.7	− 8 1 1.4
3136	" . . .	8.9	3 May 17	49 15.8	50.8	7 55 40.7	5 17.3	50 6.6	0 58.0
3137	46 Virginis . .		3 April 26	(49)		2 12 6.6	5 18.1	12 (50)	− 2 17 24.7
3138	" . . .		3 April 27	49 28.3	50.3	2 12 5.0	5 18.1	50 18.6	17 23.1
3139*	" . . .		3 April 28	49 28.2	50.3	− 2 12 12.1	5 18.0	50 18.5	17 30.1
3140	37 Comæ . .		3 May 31	49 55.0	46.7	+31 57 26.8	5 29.3	12 50 41.7	+31 51 57.5
3141	" . . .		3 June 3	49 55.0	46.7	31 57 30.7	5 29.8	50 41.7	52 0.9
3142	Piazzi 244 . .	6.7	5 Mar. 30	50 11.5	40.1	32 56 15.9	4 36.0	12 50 51.6	+32 51 39.9
3143	Bessel, W.919 .	6.7	3 May 4	50 10.0	49.5	5 31 39.3	5 19.4	12 50 59.5	+ 5 26 19.9
3144	38 Comæ . . .	6	3 May 2	50 27.7	48.3	18 17 42.7	5 21.6	12 51 16.0	+18 12 21.1
3145	" . . .		3 May 20	50 27.6	48.3	18 17 41.1	5 24.0	51 15.9	12 17.1
3146*	47 Virginis ε		3 Feb. 26	51 24.5	49.4	12 7 26.6	5 17.1	12 52 13.9	+12 2 9.5
3147	" . . .		3 April 3	51 25.0	48.9	12 7 29.8	5 17.6	52 13.9	2 12.2
3148	" . . .		3 May 12	51 25.5	48.9	+12 7 33.3	5 21.0	52 14.4	2 12.3
3149	48 Virginis . .		3 April 4	52 46.9	50.4	− 2 29 43.6	5 16.9	12 53 37.3	− 2 35 0.5
3150	" . . .	6.7	3 April 14	52 46.7	50.3	2 29 35.7	5 16.7	53 37.0	34 52.4
3151	" . . .		3 April 26	52 46.1	50.3	2 29 43.5	5 16.7	53 36.4	35 0.2
3152	" . . .		3 April 27	52 46.7	50.3	2 29 45.0	5 16.8	53 37.0	35 1.8
3153	" . . .		3 April 28	52 46.1	50.3	2 29 48.3	5 16.9	53 36.4	35 5.2
3154	48 Virginis . .	6	3 May 9	52 45.9	50.3	2 29 39.8	5 17.2	12 53 36.2	− 2 34 57.0
3155*	Lalande 24305 .	8	3 May 1	53 32.3	50.8	− 7 24 20.6	5 16.0	12 54 23.1	− 7 29 36.6
3156	Groombridge 1953	7.8	5 Mar. 30	54 5.4	38.0	+44 9 33.2	4 35.4	12 54 43.4	+44 4 57.8
3157	Piazzi 262 . .	7	3 May 16	55 3.3	51.5	−13 45 17.5	5 14.1	12 55 54.8	−13 50 31.6
3158*	14 Canum Ven. .		3 June 3	55 36.9	45.4	+36 57 46.7	5 28.9	12 56 22.3	+36 52 17.8
3159	39 Comæ . .	6	3 May 2	55 48.7	47.5	22 19 15.3	5 20.3	12 56 36.2	+22 13 55.0
3160	" . . .		3 May 4	55 48.5	47.5	22 19 7.1	5 20.5	56 36.0	13 46.6
3161	40 Comæ . .		3 June 3	55 50.0	47.5	23 46 56.9	5 25.1	12 56 37.5	+23 41 31.8
3162	Groombridge 1956	6	5 Mar. 30	56 12.7	37.4	+46 25 0.2	4 34.7	12 56 50.1	+46 20 25.5
3163	49 Virginis g		3 Feb. 19	56 34.4	51.8	− 9 34 43.8	5 20.5	12 57 26.2	− 9 40 4.3
3164*	" . . .		3 Feb. 26	56 34.4	51.7	9 34 40.3	5 19.5	57 26.1	39 59.8
3165	" . . .		3 April 4	56 35.5	51.2	9 34 47.1	5 15.3	57 26.7	40 2.4
3166	" . . .		3 April 14	56 35.0	51.1	9 34 46.2	5 14.8	57 26.1	40 1.0
3167	" . . .		3 April 26	56 34.5	51.1	9 34 47.6	5 14.5	57 25.6	40 2.1
3168*	" . . .		3 April 28	56 35.0	51.1	9 34 53.1	5 14.5	57 26.1	40 7.6
3169	" . . .		3 May 15	56 35.1	51.1	− 9 34 52.5	5 14.4	57 26.2	40 6.9
3170	41 Comæ . .		3 May 20	12 56 47.0	+ 46.6	+28 47 31.3	− 5 24.2	12 57 33.6	+28 42 7.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3171	292 Argelander .	6	3 April 27	12 57 17.2	+ 50.9	− 7 49 17.0	− 5 14.4	12 58 8.1	− 7 54 31.4
3172	" . . .	6	3 May 12	57 17.9	50.9	− 7 49 20.1	5 14.3	58 8.8	54 34.4
3173*	1745 Bradley . .	7	3 May 20	57 31.4	46.6	+28(44)		12 58 18.0	+28(38)
†3174		6	3 May 17	58 15.8	51.7	−15 21 31.8	5 12.4	12 59 7.5	−15 26 44.2
3175	50 Virginis . .		3 April 4	58 27.3	51.1	9 10 14.4	5 14.7	12 59 18.4	− 9 15 29.1
3176	" . . .		3 April 26	(58)		9 10 14.4		(59)	15 28.2
3177	51 Virginis θ		3 Feb. 19	58 45.2	51.3	4 22 43.7	5 18.3	12 59 36.5	− 4 28 2.0
3178	" . . .		3 April 25	58 45.8	50.5	4 22 45.4	5 14.1	59 36.3	27 59.5
3179	" . . .		3 May 1	58 46.1	50.5	4 22 47.4	5 14.2	59 36.6	28 1.6
3180	" . . .		3 May 9	58 45.8	50.5	− 4 22 45.0	5 14.4	59 36.3	27 59.4
3181	42 Comæ Ber. .	6	3 May 2	59 27.9	47.8	+18 40 46.4	5 18.0	13 0 15.7	+18 35 28.4
3182	" . . .		3 May 4	59 28.0	47.8	18 40 40.9	5 18.3	0 15.8	35 22.6
3183	" . . .		3 May 20	59 26.5	47.9	18 40 47.6	5 20.4	0 14.4	35 27.2
3184	" . . .		3 June 2	59 27.7	48.0	18 40 44.1	5 21.9	0 15.7	35 22.2
3185*	Piazzi 3 . . .		3 April 16	12 59 32.6	51.0	8 56 43.1	5 13.5	13 0 23.6	− 9 1 56.6
3186	17 Canum Ven. .		3 June 2	13 0 6.3	44.7	39 39 23.4	5 27.6	13 0 51.0	+39 33 55.8
3187	" . . .		3 June 3	0 6.1	44.7	+39 39 23.5	5 27.8	0 50.8	33 55.7
3188	Anonyma . .	8	3 May 15	0 3.0	51.1	− 9 21 38.2	5 13.0	13 0 54.1	− 9 26 51.2
3189	Lalande 24494 .	7.8	3 April 4	0 21.9	51.2	10 4 0.5	5 13.9	13 1 13.1	−10 9 14.4
3190	" . . .	7.8	3 April 26	0 21.0	51.2	10 3 59.3	5 13.0	1 12.2	9 12.3
3191*	53 Virginis . .	5	3 April 27	0 34.4	51.7	15 1 34.3	5 12.2	13 1 26.1	−15 6 46.5
3192	" . . .		3 April 28	0 34.7	51.7	15 1 40.5	5 12.3	1 26.4	6 52.8
3193	" . . .	6.5	3 May 17	0 34.6	51.7	15 1 41.7	5 11.6	1 26.3	6 53.3
3194	54 Virginis . .		3 April 14	1 54.8	52.1	17 40 21.9	5 12.4	13 2 46.9	−17 45 34.3
3195	55 Virginis . .		3 May 4	2 38.0	52.2	−18 47 24.8	5 10.6	13 3 30.2	−18 52 35.4
3196*	534 Mayer . .	6.7	3 May 17	2 56.8	49.8	+ 2 36 39.7	5 14.7	13 3 46.6	+ 2 31 25.0
3197*	56 Virginis . .	7.8	3 Feb. 26	3 25.5	51.8	− 9 12 59.6	5 16.6	13 4 17.3	− 9 18 16.2
3198	" . . .	7	3 April 4	3 26.5	51.2	9 13 0.9	5 12.6	4 17.7	18 13.5
3199	" . . .		3 April 25	3 25.4	51.1	9 13 5.5	5 11.8	4 16.5	18 17.3
3200	" . . .	8.9	3 April 26	3 25.1	51.1	9 13 4.4	5 11.7	4 16.2	18 16.1
3201	" . . .	7	3 April 27	3 25.8	51.1	9 13 1.9	5 11.7	4 16.9	18 13.6
3202	" . . .	7	3 April 28	3 25.6	51.1	9 13 5.5	5 11.7	4 16.7	18 17.2
3203*	" . . .		3 May 1	3 26.1	51.1	9 13 3.0	5 11.7	4 17.2	18 14.7
3204*	" . . .	7.8	3 May 15	3 26.3	51.1	9 13 12.0	5 11.6	4 17.4	18 23.6
3205*	Piazzi 25 . . .	7.8	3 May 12	3 38.8	51.2	10 12 7.6	5 11.3	13 4 30.0	−10 17 18.9
3206	57 Virginis . .		3 April 16	4 18.9	52.4	−18 47 9.7	5 11.2	13 5 11.3	−18 52 20.9
3207	" . . .		3 May 4	4 18.5	52.3	18 47 14.8	5 9.5	5 10.8	52 24.3
3208	Lalande 24626 .	7	3 April 29	5 30.4	49.1	+ 7 39 20.7	5 13.1	13 6 19.5	+ 7 34 7.6
3209	Lalande 24650 .	7	3 May 12	6 1.5	51.3	−10 20 19.7	5 10.3	13 6 52.8	−10 25 30.0
3210	58 Virginis . .	6.7	3 April 4	6 8.4	51.3	9 24 6.2	5 11.5	13 6 59.7	− 9 29 16.7
3211	" . . .	7	3 April 25	6 8.2	51.2	9 24 4.4	5 10.6	6 59.4	29 15.0
3212*	" . . .	7	3 April 26	6 7.9	51.2	9 24 7.1	5 10.6	6 59.1	29 17.7
3213	" . . .	6.7	3 April 27	6 7.8	51.2	9 24 4.4	5 10.5	6 59.0	29 14.9
3214*	" . . .	6	3 April 28	6 7.8	51.2	9 24 9.6	5 10.5	6 59.0	29 20.1
3215	" . . .	7	3 May 15	6 8.7	51.2	− 9 24 11.2	5 10.5	6 59.9	29 21.7
3216	60 Virginis σ		3 April 29	6 41.0	49.2	+ 6 36 50.9	5 12.4	13 7 30.2	+ 6 31 38.5
3217	61 Virginis . .	6.5	3 May 17	7 7.0	52.1	−17 6 21.9	5 8.4	13 7 59.1	−17 11 30.3
3218	20 Canum Ven. .		3 May 31	7 50.3	43.6	+41 43 6.8	5 24.2	13 8 33.9	+41 37 42.6
3219	62 Virginis . .		3 April 7	8 59.7	51.4	−10 9 45.3	5 9.9	13 9 51.1	−10 14 55.2
3220	" . . .		3 April 25	8 59.1	51.3	10 9 42.7	5 9.2	9 50.4	14 51.9
3221	" . . .	6.7	3 April 27	8 59.7	51.3	10 9 48.0	5 9.1	9 51.0	14 57.1
3222	" . . .	7	3 April 29	8 59.6	51.3	10 9 45.3	5 9.2	9 50.9	14 54.5
3223	" . . .		3 May 15	8 59.6	51.3	−10 9 48.7	5 9.0	9 50.9	14 57.7
3224	1768 Bradley . .	6	3 May 4	9 38.6	49.2	+ 5 58 5.5	5 11.3	13 10 27.8	+ 5 52 54.2
3225	Lalande 24747 .	6	3 April 4	9 43.5	49.6	4 4 57.9	5 9.6	13 10 33.1	+ 3 59 48.3
3226	" . . .	6.7	3 April 26	9 43.3	49.5	+ 4 4 55.5	5 10.4	10 32.8	59 45.1
3227	Piazzi 58 . . .	8	3 Feb. 19	9 51.3	52.0	− 8 51 45.9	5 14.6	13 10 43.3	− 8 57 0.5
3228	Piazzi 59 . . .	4	3 April 16	9 54.3	52.4	−18 20 57.1	5 8.9	13 10 46.7	−18 26 6.0
3229	23 Canum Ven. .		3 May 20	10 36.4	43.3	+41 17 36.9	5 20.8	13 11 19.7	+41 12 16.1
3230	Lalande 24769 .	6	3 April 14	13 10 38.4	+ 51.8	−13 16 39.2	− 5 8.8	13 11 30.2	−13 21 48.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3231	Bessel, W.235		3 May 1	13 11 0.5	+ 50.5	− 3 31 35.3	− 5 8.9	13 11 51.0	− 3 36 44.2
3232	64 Virginis		3 April 4	11 15.9	49.3	+ 6 17 36.6	5 8.8	13 12 5.2	+ 6 12 27.8
3233	"		3 June 3	11 16.0	49.3	+ 6 17 39.1	5 13.0	12 5.3	12 26.1
3234	63 Virginis		3 April 28	11 27.6	52.2	−16 35 53.7	5 7.6	13 12 19.8	−16 41 1.3
3235	65 Virginis		3 April 27	12 7.6	50.5	3 47 13.5	5 8.3	13 12 58.1	− 3 52 21.8
3236	"		3 May 1	12 7.2	50.5	3 47 15.1	5 8.4	12 57.7	52 23.5
3237	Piazzi 72	8	3 April 25	12 34.5	51.3	9 44 10.3	5 7.6	13 13 25.8	− 9 49 17.9
3238	"	7.8	3 May 9	12 35.2	51.3	9 43 55.4	5 7.5	13 26.5	49 2.9
†3239		8	3 April 29	12 34.9	51.7	−13 16 9.8	5 7.2	13 13 26.6	−13 21 17.0
3240	Bessel, W.257	7.8	3 April 26	12 39.6	49.5	+ 3 50 47.4	5 9.1	13 13 29.1	+ 3 45 38.3
3241	66 Virginis	6.5	3 April 27	13 18.6	50.5	− 4 1 40.2	5 7.7	13 14 9.1	− 4 6 47.9
3242	"		3 June 2	13 18.8	50.6	4 1 45.6	5 9.0	14 9.4	6 54.6
3243	Spica Virginis		3 Feb. 19	13 48.8	52.2	10 1 33.8	5 13.1	13 14 41.0	−10 6 46.9
3244	"		3 Feb. 26	13 48.3	52.1	10 1 34.3	5 11.9	14 40.4	6 46.2
3245	"		3 April 3	13 49.0	51.5	10 1 37.4	5 7.9	14 40.5	6 45.3
3246	"		3 April 4	13 49.1	51.5	10 1 34.4	5 7.8	14 40.6	6 42.2
3247	"		3 April 7	13 48.9	51.4	10 1 35.1	5 7.7	14 40.3	6 42.8
3248	"		3 April 9	13 49.3	51.4	10 1 36.1	5 7.6	14 40.7	6 43.7
3249	"		3 April 14	13 49.4	51.4	10 1 36.9	5 7.4	14 40.8	6 44.3
3250	"		3 April 16	13 49.2	51.4	10 1 33.2	5 7.2	14 40.6	6 40.4
3251	"		3 April 18	13 49.3	51.4	10 1 41.2	5 7.1	14 40.7	6 48.3
3252	"		3 April 25	13 49.1	51.3	10 1 33.8	5 7.0	14 40.4	6 40.8
3253	"		3 April 28	13 49.1	51.3	10 1 40.0	5 7.0	14 40.4	6 47.0
3254	"		3 April 29	13 48.9	51.3	10 1 36.8	5 7.0	14 40.2	6 43.8
3255	"		3 May 4	13 49.2	51.3	10 1 41.0	5 6.7	14 40.5	6 47.7
3256	"		3 May 9	13 48.9	51.3	10 1 37.0	5 6.7	14 40.2	6 43.7
3257	"		3 May 12	13 50.0	51.3	10 1 41.3	5 6.7	14 41.3	6 48.0
3258	"		3 May 15	13 49.3	51.3	10 1 42.2	5 6.7	14 40.0	6 48.9
3259	"		3 May 17	13 49.5	51.3	10 1 40.8	5 6.8	14 40.8	6 47.6
3260*	"		3 May 20	13 49.0	51.3	10 1 41.6	5 6.8	14 40.3	6 48.4
3261*	"		3 May 31	13 48.8	51.4	10 1 41.4	5 6.9	14 40.2	6 48.3
3262	"		3 June 2	13 49.0	51.4	10 1 38.6	5 7.1	14 40.4	6 45.7
3263	"		3 June 3	13 49.0	51.4	10 1 40.3	5 7.2	14 40.4	6 47.5
3264	"	1	3 July 5	13 49.2	51.6	10 1 40.7	5 8.5	14 40.8	6 49.2
3265	"	1	3 July 10	13 49.0	51.7	10 1 40.8	5 8.6	14 40.7	6 49.4
3266	"	1	3 July 26	13 48.8	51.8	10 1 36.8	5 9.5	14 40.6	6 46.3
3267	"	1	3 July 29	13 49.0	51.9	10 1 40.1	5 9.7	14 40.9	6 49.8
3268	"	1	5 Mar. 30	13 56.3	44.6	10 2 21.5	4 26.9	14 40.9	6 48.4
3269	69 Virginis		3 May 4	(15)		14 50 49.6	5 5.0	13(16)	−14 55 54.6
3270	"		3 May 9	(15)		14 50 42.8	5 4.9	(16)	55 47.7
3271	"		3 May 12	15 57.3	52.0	−14 50 51.5	5 4.7	16 49.3	55 56.2
3272	70 Virginis	6	3 Feb. 26	17 50.1	48.5	+14 56 18.5	5 4.3	13 18 38.6	+14 51 14.2
3273	"		3 April 3	17 51.2	47.9	14 56 19.7	5 5.5	18 39.1	51 14.2
3274*	"		3 April 18	17 51.4	47.8	14 56 22.7	5 6.8	18 39.2	51 15.9
3275	"	6.5	3 April 29	17 51.7	47.8	+14 56 23.2	5 8.0	18 39.5	51 15.2
3276	542 Mayer	7	3 May 31	18 9.5	50.1	− 0 14 9.8	5 7.4	13 18 59.6	− 0 19 17.2
3277	"	7	3 June 2	18 9.5	50.1	− 0 14 8.6	5 7.6	18 59.6	19 16.2
3278	71 Virginis		3 April 7	(18)		+11 56 42.9	5 5.1	13(19)	+11 51 37.8
3279	"		3 April 14	18 31.0	48.3	+11 56 44.6	5 4.8	19 19.3	51 39.8
3280	72 Virginis l[1]		3 April 4	19 10.2	50.9	− 5 20 51.8	5 5.0	13 20 1.1	− 5 25 56.8
3281	"		3 April 16	19 9.8	50.8	5 20 59.9	5 4.6	20 0.6	26 4.4
3282	Piazzi 106	6	3 April 9	19 42.4	50.4	1 55 49.4	5 4.5	13 20 32.8	− 2 0 53.9
3283	"	7.8	3 May 4	19 42.5	50.3	1 55 48.3	5 4.9	20 32.8	0 53.2
3284	73 Virginis		3 April 25	20 24.2	52.6	17 36 23.5	5 3.1	13 21 16.8	−17 41 26.6
3285	Bessel, W.391	9	3 April 27	20 27.0	51.3	9 8 14.5	5 3.6	13 21 18.3	− 9 13 18.1
3286	74 Virginis l[2]		3 Feb. 26	20 43.6	51.5	5 7 56.3	5 7.2	13 21 35.1	− 5 13 3.5
3287	"		3 April 16	20 43.5	50.8	5 7 56.1	5 3.8	21 34.3	12 59.9
3288	75 Virginis		3 April 7	21 20.1	52.2	14 14 37.2	5 3.9	13 22 12.3	−14 19 41.1
3289	76 Virginis h		3 April 9	(21)		9 2 41.0	5 3.6	13(22)	− 9 7 44.6
3290	"		3 April 27	13 21 35.7	+ 51.3	− 9 2 40.7	− 5 3.0	13 22 27.0	− 9 7 43.7

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3291	76 Virginis h		3 May 9	13 21 35.4	+ 51.3	− 9 2 38.8	− 5 2.9	13 22 26.7	− 9 7 41.7
3292	" . . .		3 May 12	21 36.9	51.3	9 2 42.7	5 3.0	22 28.2	7 45.7
3293	Piazzi 119 . .	8	3 April 29	21 49.8	50.2	1 18 20.3	5 3.6	13 22 40.0	− 1 23 23.9
3294	Bessel, W.421 .	7.8	3 April 18	21 55.6	51.1	− 7 19 41.9	5 3.2	13 22 46.7	− 7 24 45.1
3295	Flamsteed, B.1862	6.7	3 May 20	22 32.9	45.9	+25 28 41.2	5 10.5	13 23 18.8	+25 23 30.7
3296	" . . .	6	3 May 31	22 32.8	46.0	+25 28 36.8	5 12.1	23 18.8	23 24.7
3297	Bessel, W.438 .	7	3 April 25	22 58.6	51.1	− 7 30 3.3	5 2.5	13 23 49.7	− 7 35 5.8
3298	" . . .	8	3 May 4	22 58.8	51.1	− 7 30 11.7	5 2.3	23 49.9	35 14.0
3299	78 Virginis . .		3 April 7	(23)		+ 4 46 34.6	5 2.7	13(24)	+ 4 41 31.9
3300	" . . .		3 April 14	23 11.1	49.3	4 46 34.6	5 2.7	24 0.4	41 31.9
3301	" . . .	6	3 May 15	23 10.9	49.3	4 46 30.8	5 4.9	24 0.2	41 25.9
3302	Piazzi 127 . .	7.8	3 June 2	23 15.3	49.9	0 48 0.3	5 5.0	13 24 5.2	+ 0 42 55.3
3303	79 Virginis ζ		3 Feb. 26	23 40.4	50.7	0 31 0.8	5 3.1	13 24 31.1	+ 0 25 57.7
3304	" . . .		3 April 3	23 40.9	50.1	0 30 54.2	5 2.3	24 31.0	25 51.9
3305	" . . .		3 April 4	23 41.4	50.1	0 30 59.6	5 2.3	24 31.5	25 57.3
3306	" . . .		3 May 17	23 41.2	49.9	0 30 56.3	5 3.8	24 31.1	25 52.5
3307*	" . . .		4 May 25	23 44.3	46.5	+ 0 30 36.2	4 43.8	24 30.8	25 52.4
3308	80 Virginis β		3 April 9	24 16.8	50.7	− 4 17 17.4	5 2.0	13 25 7.5	− 4 22 19.4
3309	" . . .		3 April 16	24 16.5	50.7	− 4 17 13.4	5 1.9	25 7.2	22 15.3
3310	Lalande 25146 .	6.7	3 April 27	25 12.6	50.0	+ 0 11 0.9	5 1.9	13 26 2.6	+ 0 5 59.0
3311	" . . .	7.8	3 June 2	25 12.7	50.0	0 10 59.3	5 4.0	26 2.7	5 55.3
3312	Bessel, W.583 .	9.10	5 April 9	25 57.9	39.7	+25 1 56.8	4 21.2	13 26 37.6	+24 57 35.6
3313	81 Virginis . .	6.7	3 Feb. 26	26 15.9	51.8	− 6 45 37.8	5 4.5	13 27 7.7	− 6 50 42.3
3314	" . . .		3 April 3	26 16.5	51.2	6 45 45.4	5 1.1	27 7.7	50 46.5
3315*	" . . .		3 April 4	26 16.1	51.2	6 45 41.8	5 1.1	27 7.3	50 42.9
3316	" . . .		3 April 7	26 15.8	51.2	6 45 42.3	5 1.0	27 7.0	50 43.3
3317*	" . . .		3 April 21	26 16.4	51.1	− 6 45 47.8	5 0.6	27 7.5	50 48.4
3318	Lalande 25176 .	6.5	3 May 20	26 48.1	45.6	+25 43 24.7	5 8.0	13 27 33.7	+25 38 16.7
3319	" . . .	6	3 May 31	26 48.5	45.7	25 43 23.5	5 9.7	27 34.2	38 13.8
3320	" . . .	6.7	5 April 9	26 53.2	39.5	25 42 38.0	4 20.9	27 32.7	38 17.1
3321	Lalande 25177 .	6.7	3 April 9	26 45.6	49.5	3 29 30.9	5 0.6	13 27 35.1	+ 3 24 30.3
3322	" . . .	7	3 April 25	26 45.6	49.4	3 29 35.7	5 1.2	27 35.0	24 34.5
3323	" . . .	7	3 April 29	26 45.7	49.4	3 29 32.4	5 0.8	27 35.1	24 31.6
3324	Lalande 25190 .	6	3 May 9	27 32.7	47.5	15 24 40.6	5 3.8	13 28 20.2	+15 19 36.8
3325	" . . .	6	3 May 12	27 34.4	47.5	+15 24		28 21.9	19
3326	Lalande 25213 .	6	3 April 7	(28)		−15 20 25.3	5 0.2	13(29)	−15 25 25.5
3327	" . . .	6.7	3 April 16	28 21.4	52.4	15 20 20.4	4 59.4	29 13.8	25 19.8
3328	" . . .	6.7	3 April 18	28 21.0	52.4	−15 20 28.5	4 59.4	29 13.4	25 27.9
3329	Piazzi 155 . .	7	3 April 27	28 38.3	46.7	+19 22 18.5	5 2.0	13 29 25.0	+19 17 16.5
3330	" . . .	6.7	3 May 15	28 37.7	46.7	19 22 16.4	5 4.7	29 24.4	17 11.7
3331	Lalande 25222 .	7	3 May 20	28 45.3	45.6	25 14 22.8	5 6.7	13 29 30.9	+25 9 16.1
3332	" . . .	8.9	3 May 31	28 45.4	45.7	25 14 19.1	5 8.5	29 31.1	9 10.6
3333	" . . .	9.10	5 April 9	28 50.6	39.5	25 13 30.0	4 19.8	29 30.1	9 10.2
3334	Lalande 25236 .	8	3 April 9	29 26.9	49.6	3 16 17.2	4 58.9	13 30 16.5	+ 3 11 18.3
3335	Lalande 25255 .	7.8	3 May 9	30 19.4	46.5	+20 18 21.9	5 3.0	13 31 5.9	+20 13 18.9
3336	82 Virginis m		3 Feb. 26	30 16.1	51.3	− 7 36 13.7	5 2.3	13 31 7.4	− 7 41 16.0
3337	" . . .		3 April 3	30 16.8	50.7	7 36 19.8	4 58.8	31 7.5	41 17.6
3338	" . . .		3 April 4	30 17.0	50.7	7 36 16.7	4 58.9	31 7.7	41 15.6
3339	" . . .		3 April 21	30 17.0	50.6	− 7 36 20.7	4 58.3	31 7.6	41 19.0
3340	1 Boötis . . .	6.7	3 April 27	30 20.8	46.4	+21 3 23.3	5 1.3	13 31 7.2	+20 58 22.0
3341*	2 Boötis . . .	6	3 May 15	30 48.5	45.9	23 35 52.2	5 4.2	13 31 34.4	+23 30 48.0
3342	" . . .		3 May 20	30 48.4	45.9	23 35 57.9	5 5.1	31 34.3	30 52.8
3343	" . . .	8	3 May 31	30 48.0	45.9	23 35 54.5	5 6.8	31 33.9	30 47.7
3344	" . . .	6	5 April 9	30 53.2	39.7	23 35 9.1	4 18.5	31 32.9	30 50.6
3345	Lalande 25271 .	9	3 May 4	30 52.7	49.0	5 52 22.3	4 59.6	13 31 41.7	+ 5 47 22.7
3346*	Lalande 25286 .	7.8	3 June 2	31 37.0	39.6	47 23 5.6	5 12.4	13 32 16.6	+47 17 53.2
3347	" . . .	7	4 May 25	31 39.6	36.8	47 22 41.2	4 50.4	32 16.4	17 50.8
3348*	84 Virginis o		3 April 7	32 12.1	49.4	4 38		13 33 1.5	+ 4 33
3349	" . . .		3 April 9	32 12.2	49.3	4 38 21.9	4 57.2	33 1.5	33 24.7
3350*	" . . .		3 April 14	13 32 12.2	+ 49.3	+ 4 38 20.6	− 4 57.5	13 33 1.5	+ 4 33 23.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3351	84 Virginis o		3 April 25	13 32 12.3	+ 49.2	+ 4 38 24.6	— 4 58.1	13 33 1.5	+ 4 33 26.5
3352	549 Mayer . .	6.7	3 April 3	32 40.0	50.9	— 4 24 8.9	4 57.2	13 33 30.9	— 4 29 6.1
3353	Lalande 25319 .		3 May 17	32 46.9	52.2	13 39 57.6	4 55.8	13 33 39.1	—13 44 53.4
3354	83 Virginis . .		3 April 16	32 51.8	52.5	—15 4 59.2	4 56.8	13 33 44.3	—15 9 56.0
3355	" . .		3 April 21	32 51.5	52.5	15 5 1.8	4 56.6	33 44.0	9 58.4
3356	310 Argelander .		3 April 27	33 31.9	45.7	+23 47 51.8	4 59.5	13 34 17.6	+23 42 53.3
3357	" . . .	6.7	3 May 9	33 31.6	45.7	23 47 54.1	5 1.7	34 17.3	42 52.4
3358	" . . .	6.7	3 May 15	33 31.8	45.7	23 47 49.8	5 2.6	34 17.5	42 47.2
3359	" . . .	6	3 May 20	33 31.5	45.7	23 47 55.1	5 3.3	34 17.2	42 51.8
3360	" . . .	6	3 May 31	33 32.0	45.8	+23 47 50.7	5 5.0	34 17.8	42 45.7
3361	85 Virginis . .		3 April 7	(34)		—14 40 24.0	4 56.9	13(35)	—14 45 20.9
3362	86 Virginis . .		3 Feb. 26	34 25.6	52.7	—11 20 5.3	5 0.9	13 35 18.3	—11 25 6.2
3363	Johnson 3079 .	7	3 June 2	34 28.5	39.6	+46 37 2.1	5 10.3	13 35 8.1	+46 31 51.8
3364	Lalande 25363 .	7	5 April 9	34 38.7	41.6	+11 24 27.4	4 16.1	13 35 20.3	+11 20 11.3
3365	Piazzi 190 . .	7	3 April 18	35 27.5	53.1	—18 10 0.1	4 50.4	13 36 20.6	—18 14 50.5
3366	87 Virginis . .	5.6	3 April 4	35 41.2	53.0	16 46 12.9	4 56.2	13 36 34.2	—16 51 9.1
3367	" . .		3 April 14	35 40.9	52.9	16 46 7.2	4 55.4	36 33.8	51 2.6
3368	Flamsteed, B.4591	7	3 April 25	35 48.6	51.4	8 37 3.5	4 54.9	13 36 40.0	— 8 41 58.4
3369	Piazzi 192 . .	6.7	3 April 9	36 7.9	51.0	5 36 51.1	4 55.1	13 36 58.9	— 5 41 46.2
3370	" . . .	6.7	3 May 4	36 8.2	50.9	5 36 58.0	4 55.0	36 59.1	41 53.0
3371	" . . .		3 May 15	36 8.4	50.9	5 37 4.9	4 55.2	36 59.3	42 0.1
3372	" . . .	7	3 May 31	36 8.3	50.9	— 5 37 4.0	4 55.9	36 59.2	41 59.9
3373	3 Boötis . . .	6	3 May 20	36 40.6	44.9	+26 47 41.5	5 2.0	13 37 25.5	+26 42 39.5
3374	" . . .	6	5 April 9	36 45.7	38.9	26 46 54.8	4 15.3	37 24.6	42 39.5
3375	Groombridge 2044	6	3 June 2	37 2.6	40.9	42 10 54.4	5 7.7	13 37 43.5	+42 5 46.7
3376	4 Boötis τ		3 April 27	36 59.2	46.6	18 32 28.6	4 56.8	13 37 45.8	+18 27 31.8
3377	" . . .		4 May 25	37 2.7	43.4	+18 32 6.1	4 40.6	37 46.1	27 25.5
3378*	88 Virginis . .		3 April 7	37 0.0	51.1	— 5 45 0.4	4 54.5	13 37 51.1	— 5 49 54.9
3379	" . . .		3 May 4	37 0.2	50.9	5 45 4.0	4 54.4	37 51.1	49 58.4
3380	" . . .	6	3 May 9	37 0.1	50.9	5 45 2.2	4 54.5	37 51.0	49 56.7
3381	" . . .	6.7	3 May 31	37 0.0	51.0	5 45 7.2	4 55.2	37 51.0	50 2.4
3382	89 Virginis . .		3 April 4	38 9.2	53.1	17 2 55.9	4 54.9	13 39 2.3	—17 7 50.8
3383	" . . .		3 April 7	(38)		17 2 52.0	4 54.6	(39)	7 46.6
3384	" . . .		3 April 16	38 8.5	53.0	17 2 53.3	4 53.7	39 1.5	7 47.0
3385*	" . . .	5.6	3 April 18	38 9.2	53.0	17 2 56.1	4 53.6	39 2.2	7 49.7
3386	" . . .		3 April 21	38 9.1	53.0	—17 2 56.3	4 53.3	39 2.1	7 49.6
3387	85 Ursæ Maj. η		3 July 10	39 0.3	38.4	+50 24 12.1	5 12.6	13 39 38.7	+50 18 59.5
3388*	" . . .	2	3 July 19	39 0.5	38.6	50 24 13.7	5 12.7	39 39.1	19 1.0
3389*	" . . .		3 July 29	38 59.9	38.8	50 24 4.6	5 12.4	39 38.7	18 52.2
3390	" . . .		4 May 25	(39)		50 23 39.6	4 46.5	(39)	18 53.1
3391	" . . .		4 June 16	39 3.3	35.2	50 23 46.3	4 50.5	39 38.5	18 55.8
3392	Groombridge 2051	7	3 June 2	38 58.6	40.4	43 8 21.8	5 6.5	13 39 39.0	+43 3 15.3
3393	5 Boötis υ		3 May 12	39 4.1	46.9	16 52 37.4	4 57.1	13 39 51.0	+16 47 40.3
3394	" . .		3 May 17	39 3.3	46.9	16 52 35.3	4 57.8	39 50.2	47 37.5
3395	Lalande 25475 .	7	3 May 31	39 13.4	44.6	28 4 8.5	5 2.5	13 39 58.0	+27 59 6.0
3396	6 Boötis . . .	5.6	3 May 20	39 29.3	45.8	22 20 44.9	4 59.2	13 40 15.1	+22 15 45.7
3397	" . . .	6	5 April 9	39 34.6	39.7	22 19 58.6	4 13.5	40 14.3	15 45.1
3398	Johnson 3100 .	7.8	3 June 2	39 38.4	40.3	43 25 39.4	5 6.3	13 40 18.7	+43 20 33.1
3399*	Lalande 25485 .	6.7	3 April 25	39 33.9	48.8	6 34 40.4	4 53.6	13 40 22.7	+ 6 29 46.8
3400	" . . .	6	3 May 15	39 33.7	48.8	6 34 36.1	4 55.3	40 22.5	29 40.8
3401	Piazzi 220 . .	7	5 April 9	40 16.3	39.7	+22 20 31.6	4 13.1	13 40 56.0	+22 16 18.5
3402	Bessel, W.766 .	7.8	3 May 9	41 26.0	51.6	— 9 36 19.0	4 51.2	13 42 17.6	— 9 41 10.2
3403	" . .	7.8	3 May 16	41 26.8	51.6	— 9 36 25.0	4 51.8	42 18.4	41 16.8
3404	Lalande 25528 .	7.8	3 May 4	41 37.5	49.6	+ 1 53 54.9	4 52.3	13 42 27.1	+ 1 49 2.6
3405	Flamsteed, B.1906	6	3 April 9	42 8.6	46.8	17 48 20.0	4 51.8	13 42 55.4	+17 43 28.2
3406	" . . .	6	3 May 12	42 10.0	46.6	17 48 18.4	4 55.1	42 56.6	43 23.3
3407	7 Boötis . . .		3 April 27	42 53.2	46.4	19 0 19.9	4 52.7	13 43 39.6	+18 55 27.2
3408	" . . .	7	3 May 17	42 53.2	46.3	19 0 18.8	4 55.6	43 39.5	55 23.2
3409	" . . .	7	3 May 20	42 53.1	46.4	19 0 22.8	4 56.2	43 39.5	55 26.6
3410	" . . .		4 May 25	13 42 56.1	+ 43.2	+18 59 58.3	— 4 37.0	13 43 39.3	+18 55 21.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3411	Lalande 25570 .	9.10	3 April 16	13 43 14.3	+ 49.3	+ 4 13 45.7	— 4 50.4	13 44 3.6	+ 4 8 55.3
3412	Flamsteed, B.1911	6	3 May 31	43 22.0	44.0	29 43 14.4	5 0.0	13 44 6.0	+29 38 14 4
3413	" . . .	6.7	5 April 9	43 27.0	38.0	29 42 29.0	4 11.4	44 5.0	38 17.6
3414	Lalande 25580 .	7.8	3 April 25	43 30.9	47.1	+14 54 24.6	4 51.6	13 44 18.0	+14 49 33.0
3415	90 Virginis p		3 Feb. 26	43 36.0	50.9	— 0 25 53.1	4 52.0	13 44 26.9	— 0 30 45.1
3416	" . . .		3 April 3	43 36.4	50.2	0 25 55.4	4 50.0	44 26.6	30 45.4
3417*	" . . .		3 April 4	43 36.7	50.2	0 25 54.5	4 50.0	44 26.9	30 44.5
3418	" . . .		3 April 7	(43)		— 0 25 51.9	4 49.9	(44)	30 41.8
3419	Bessel, W.1040 .	7.8	3 May 12	44 18.1	46.8	+16 20 55.5	4 53.4	13 45 4.9	+16 16 2.1
3420	8 Boötis η		3 April 27	44 23.4	46.2	19 29 16.1	4 51.6	13 45 9.6	+19 24 24.5
3421	" . . .		3 May 17	44 23.1	46.2	19 29 18.8	4 54.7	45 9.3	24 24.1
3422	" . . .		3 May 20	44 23.7	46.2	19 29 20.5	4 55.2	45 9.9	24 25.3
3423	" . . .		4 June 16	44 26.6	43.2	+19 29 3.8	4 39.2	45 9.8	24 24.6
3424	Bessel, W.826 .	7	3 May 9	44 26.2	51.5	— 8 40 19.3	4 49.3	13 45 17.7	— 8 46 8.6
3425	92 Virginis . .		3 April 7	45 27.4	49.7	+ 2 6 54.4	4 47.8	13 46 17.1	+ 2 2 6.6
3426	" . . .		3 April 14	45 27.3	49.7	2 7 0.1	4 48.9	46 17.0	2 11.2
3427	" . . .		3 April 16	45 27.2	49.6	2 6 55.3	4 48.9	46 16.8	2 6.4
3428	" . . .		3 April 18	45 27.6	49.6	2 6 55.5	4 48.9	46 17.2	2 6.6
3429	" . . .		3 April 21	45 27.9	49.6	2 6 56.1	4 49.0	46 17.5	2 7.1
3430	" . .		3 May 4	45 28.1	49.5	2 6 57.5	4 49.8	46 17.6	2 7.7
3431	" . . .	7	3 May 15	45 27.7	49.5	2 6 56.1	4 50.5	46 17.2	2 5.6
3432	Lalande 25646 .	7	3 May 31	46 16.2	43.8	29 44 19.8	4 57.9	13 47 0.0	+29 39 21.9
3433	" . . .	6.7	3 June 2	46 16.3	43.8	29 44 20.5	4 58.2	47 0.1	39 22.3
3434	Piazzi 251 . .	7	3 April 9	46 12.8	46.8	16 57 9.7	4 47.9	13 46 59.6	+16 52 21.8
3435*	" . . .	8	3 April 25	46 13.0	46.7	16 57 4.2	4 49.9	46 59.7	52 14.3
3436	" . . .	7	3 May 12	46 14.1	46.6	16 57 7.9	4 52.1	47 0.7	52 15.8
3437	9 Boötis . . .		3 April 27	46 41.8	44.0	28 33 37.2	4 51.1	13 47 25.8	+28 28 46.1
3438	" . . .		3 May 17	46 41.8	44.0	28 33 33.4	4 54.8	47 25.8	28 38.6
3439	" . . .	5.6	5 April 9	46 47.3	38.2	28 32 52.0	4 9.2	47 25.5	28 42.8
3440	Piazzi 259 . .	7.8	3 May 20	47 28.6	46.6	17 16 3.7	4 52.6	13 48 15.2	+17 11 11.1
3441*	Piazzi 260 .	7.8	3 May 15	47 42.7	46.5	17 27 52.7	4 51.5	13 48 29.2	+17 23 1.2
3442	" . . .		3 May 20	47 43.2	46.5	17 27 55.2	4 52.5	48 29.7	23 2.7
3443	10 Bootis c	7	3 April 27	48 31.1	45.3	22 45 31.2	4 49.1	13 49 16.4	+22 40 42.1
3444	" . . .		3 May 9	48 30.6	45.3	+22 45 35.3	4 51.1	49 15.9	40 44.2
3445	Piazzi 269 . .	7	3 April 3	48 37.2	50.6	— 2 29 21.4	4 46.7	13 49 27.8	— 2 34 8.1
3446	" . . .	6.7	3 April 4	48 37.9	50.6	2 29 18.5	4 46.8	49 28.5	34 5.3
3447	" . . .	6.7	3 April 16	48 37.9	50.5	— 2 29 15.7	4 46.6	49 28.4	34 2.3
3448	Lalande 25713 .	7	3 June 2	49 9.2	44.4	+26 52 30.9	4 56.1	13 49 53.6	+26 47 34.8
3449	Lalande 25723 .	6.7	3 April 7	49 23.8	49.4	3 43 58.0	4 45.7	13 50 13.2	+ 3 39 12.3
3450	" . . .	7.8	3 April 14	49 23.7	49.3	3 43 59.4	4 46.1	50 13.0	39 13.3
3451	" . . .	7	3 April 21	49 24.2	49.3	3 43 56.1	4 46.3	50 13.5	39 9.8
3452*	" . . .	7.8	3 May 16	49 24.2	49.2	3 43 54.2	4 48.1	50 13.4	39 6.1
3453	93 Virginis τ		3 April 7	(50)		2 35 55.9	4 44.9	13(51)	+ 2 31 11.0
3454	" . . .		3 April 16	50 39.3	49.5	2 35 57.7	4 45.1	51 28.8	31 12.6
3455*	" . . .		3 April 18	50 39.2	49.5	2 35 55.9	4 45.2	51 28.7	31 10.7
3456*	" . . .		3 May 4	50 38.9	49.4	2 35 52.2	4 45.1	51 28.3	31 7.1
3457	" . . .		3 May 16	50 39.2	49.4	2 35 55.3	4 46.9	51 28.6	31 8.4
3458	Lalande 25758,9	7	3 May 9	50 56.8	45.2	23 1 59.7	4 49.3	13 51 42.0	+22 57 10.4
3459	" . . .	6.7	3 May 12	50 58.7	45.2	23 1 55.5	4 49.8	51 43.9	57 5.7
3460	Piazzi 281 . .	7	3 May 31	51 18.9	46.2	18 43 33.4	4 51.6	13 52 5.1	+18 38 41.8
3461	11 Boötis . . .		3 April 27	51 22.4	43.8	28 26 17.9	4 47.6	13 52 6.2	+28 21 30.3
3462*	" . . .	6	5 April 9	51 27.2	38.0	+28 25 37.4	4 6.2	52 5.2	21 31.2
3463	557 Mayer . .	6.7	3 April 4	52 55.7	51.8	— 8 12 40.0	4 44.1	13 53 47.5	— 8 17 24.1
3464	Lalande 25835 .	7	3 May 20	53 18.6	45.0	+23 32 41.0	4 49.7	13 54 3.6	+23 27 51.3
3465	" . . .	7	5 April 9	53 23.8	39.0	23 31 59.1	4 4.9	54 2.8	27 54.2
3466	Lalande 25844,5	8	3 April 27	53 40.7	43.7	28 33 29.1	4 45.9	13 54 24.4	+28 28 43.2
3467	" . . .	7.8	3 May 12	53 41.4	43.7	+28 33 26.4	4 48.8	54 25.1	28 37.6
3468	5 Centauri θ		3 June 2	54 0.5	57.5	—35 17 59.4	4 37.7	13 54 58.0	—35 22 37.1
3469	" . . .		4 May 25	54 4.9	+ 53.5	35 18 27.4	4 19.2	54 58.4	22 46.6
3470	" . . .		4 June 16	13 54		—35 18 34.1	— 4 17.4	13 54	—35 22 51.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3471	Lalande 25873,4	7	3 April 18	13 54 53.1	+ 44.1	+26 52 11.6	— 4 43.1	13 55 37.2	+26 47 28.5
3472	" . . .	7	3 June 3	54 53.0	44.1	+26 52 8.7	4 51.5	55 37.1	47 17.2
3473	94 Virginis . .		3 April 3	54 50.9	51.7	— 7 51 10.6	4 42.7	13 55 42.6	— 7 55 53.3
3474	" . . .	6	3 April 7	54 52.0	51.7	7 51 2.2	4 42.6	55 43.7	55 44.8
3475	" . . .	7	3 April 16	54 51.6	51.6	7 51 2.5	4 42.2	55 43.2	55 44.7
3476	" . . .	7	3 May 9	54 51.6	51.4	7 51 5.3	4 42.1	55 43.0	55 47.4
3477	95 Virginis . .		3 April 3	55 17.9	51.8	8 16 27.4	4 42.4	13 56 9.7	— 8 21 9.8
3478	" . . .		3 April 4	55 17.5	51.8	8 16 26.6	4 42.4	56 9.3	21 9.0
3479*	" . . .		3 April 19	55 18.1	51.6	8 16 30.1	4 42.0	56 9.7	21 12.1
3480	" . . .		3 May 16	55 16.5	51.5	8 16 24.6	4 41.7	56 8.1	21 6.3
3481	Bessel, W.1052 .	9	3 May 4	56 0.2	51.7	— 9 17 3.7	4 41.2	13 56 51.9	— 9 21 44.9
3482*	Piazzi 303 . .	6	3 April 21	56 11.5	46.2	+18 0 32.3	4 42.0	13 56 57.7	17 55 50.3
3483	" . . .	7	3 April 25	56 11.4	46.2	18 0 28.8	4 42.5	56 57.6	55 46.3
3484	Piazzi 309 . .	7	3 May 20	57 14.0	43.3	29 28 37.7	4 47.8	13 57 57.3	+29 23 49.9
3485	Lalande 25926 .	7.8	3 April 27	57 21.8	41.4	35 48 58.3	4 43.7	13 58 3.2	+35 44 14.6
3486	" . . .	7.8	3 May 12	57 22.3	41.3	35 49 3.5	4 47.1	58 3.6	44 16.4
3487	" . . .	7	5 April 9	57 25.7	35.9	+35 48 19.9	4 2.5	58 1.6	44 17.4
3488*	96 Virginis . .		3 April 3	57 31.3	52.0	— 9 17 58.6	4 41.0	13 58 23.3	— 9 22 39.6
3489*	" . . .		3 April 4	57 31.3	52.0	9 17 57.6	4 40.8	58 23.3	22 38.4
3490	" . . .		3 April 7	57 30.7	52.0	9 18 2.7	4 40.7	58 22.7	22 43.4
3491	" . . .	5	3 April 16	57 30.4	51.9	9 18 4.1	4 40.3	58 22.3	22 44.4
3492	" . . .	6	3 May 4	57 30.5	51.8	— 9 18 8.3	4 40.1	58 22.3	22 48.4
3493	Lalande 25943 .	7	3 April 18	58 21.3	44.4	+25 20 23.3	4 41.0	13 59 5.7	+25 15 42.3
3494	562 Mayer . .	6	3 June 2	59 3.6	53.0	—15 16 19.7	4 38.1	13 59 56.6	—15 20 57.8
3495	Piazzi 3 . . .	8	3 April 16	59 39.2	51.0	4 56 35.7	4 38.5	14 0 30.2	— 5 1 14.2
3496*	" . . .	8	3 April 25	59 39.1	51.0	4 56 40.9	4 38.7	0 30.1	1 19.6
3497	" . . .	8	3 May 16	13 59 38.9	50.9	— 4 56 41.4	4 39.1	0 29.8	1 20.5
3498	12 Boötis d		3 April 21	14 0 33.0	44.2	+26 7 20.8	4 39.1	14 1 17.2	+26 2 41.7
3499	" . . .		3 April 27	0 32.8	44.1	26 7 22.2	4 40.1	1 16.9	2 42.1
3500	" . . .		3 May 20	0 32.0	44.2	26 7 27.5	4 44.5	1 16.2	2 43.0
3501	" . . .	6.5	5 April 9	0 37.7	38.2	+26 6 45.7	3 59.9	1 15.9	2 45.8
3502	Piazzi 10. . .	8	3 April 25	0 33.5	51.0	— 5 5 59.5	4 32.2	14 1 24.5	— 5 10 31.7
3503	" . . .	8	3 May 16	0 33.7	50.9	— 5 6 8.7	4 38.5	1 24.6	10 47.2
3504	Bessel, W.72 .	7	3 May 12	1 9.1	38.9	+41 48 24.9	4 45.0	14 1 48.0	+41 43 39.9
3505*	97 Virginis . .		3 April 3	1 3.2	52.0	— 8 52 30.6	4 38.3	14 1 55.2	— 8 57 8.9
3506	" . . .	8	3 April 4	1 3.7	52.0	8 52 29.1	4 38.1	1 55.7	57 7.2
3507	98 Virginis k		3 April 3	1 22.1	52.1	9 15 32.7	4 38.1	14 2 14.2	— 9 20 10.8
3508	" . . .		3 April 7	1 22.8	52.0	9 15 27.9	4 37.7	2 14.8	20 5.6
3509	" . . .	5	3 April 16	1 23.2	51.9	9 15 29.3	4 37.4	2 15.1	20 6.7
3510*	" . . .		3 April 19	1 22.9	51.9	9 15 21.3	4 37.4	2 14.8	19 58.7
3511*	" . . .		3 May 4	1 23.1	51.8	— 9 15 34.3	4 37.3	2 14.9	20 11.6
3512	Lalande 26046 .	7	3 May 31	2 6.3	45.1	+21 40 4.1	4 44.1	14 2 51.4	+21 35 20.0
3513	Groombridge 2083	7	3 May 12	2 56.2	38.2	43 21 54.6	4 43.8	14 3 34.4	+43 17 10.8
3514	" . . .	7.8	5 April 9	2 59.3	33.1	+43 21 6.2	3 58.7	3 32.4	17 7.5
3515	564 Mayer . .	7	3 April 3	3 6.0	51.2	— 4 56 5.3	4 36.3	14 3 57.2	— 5 0 41.6
3516*	" . . .	8	3 April 25	3 5.2	51.0	4 56 1.3	4 36.3	3 56.2	0 37.6
3517	" . . .	6.7	3 May 9	3 6.4	50.9	4 55 54.2	4 36.3	3 57.3	0 30.5
3518	" . . .	7	3 May 16	3 6.1	50.9	— 4 56 0.2	4 36.5	3 57.0	0 36.7
3519	14 Boötis . .	6	3 April 18	3 41.1	47.0	+13 58 51.7	4 35.5	14 4 28.1	+13 54 16.2
3520	" . . .	6	3 April 21	3 41.9	47.0	13 58 48.2	4 35.9	4 28.9	54 12.3
3521	" . . .		3 April 27	3 41.4	46.9	13 58 50.1	4 36.6	4 28.3	54 13.5
3522	Piazzi 26 . . .	7	3 June 2	4 39.6	44.7	+22 53 29.3	4 42.7	14 5 24.3	+22 48 46.6
3523	99 Virginis ι		3 April 3	4 41.2	51.2	— 4 57 40.3	4 35.0	14 5 32.4	— 5 2 15.3
3524	" . . .		3 April 4	4 41.7	51.2	4 57 41.1	4 35.0	5 32.9	2 16.1
3525	" . . .		3 April 7	4 41.8	51.2	4 57 34.9	4 34.9	5 33.0	2 9.8
3526	" . . .		3 April 16	4 41.8	51.1	4 57 36.2	4 34.7	5 32.9	2 10.9
3527	" . . .		3 April 19	4 41.5	51.0	4 57 42.3	4 34.7	5 32.5	2 17.0
3528	" . . .		3 April 25	4 41.4	51.0	4 57 38.5	4 34.7	5 32.4	2 13.2
3529*	" . . .		3 May 4	4 41.9	50.9	4 57 37.2	4 35.6	5 32.8	2 12.8
3530	" . . .		3 May 9	14 4 41.2	+ 50.9	— 4 57 36.9	— 4 35.1	14 5 32.1	— 5 2 12.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3531	99 Virginis ι		3 May 16	14 4 41.9	+ 50.9	− 4 57 39.9	− 4 35.2	14 5 32.8	− 5 2 15.1
3532	Lalande 26118,9	7	4 June 5	4 59.4	42.1	+20 54 45.5	4 24.3	14 5 41.5	+20 50 21.2
3533	" . . .	7	4 June 8	5 0.3	42.1	20 54 52.4	4 24.8	5 42.4	50 27.6
3534	Anonyma . . .	8	3 May 12	5 37.7	36.6	46 26 40.2	4 42.0	14 6 14.3	+46 21 58.2
3535	Groombridge 2089	7	5 April 9	5 44.7	33.2	42 31 41.9	3 58.6	14 6 17.9	+42 27 43.3
3536*	Arcturus . . .		3 April 18	5 48.5	45.4	20 18 54.2	4 34.1	14 6 33.9	+20 14 20.1
3537	" . . .		3 April 21	5 48.1	45.4	20 18 53.1	4 34.5	6 33.5	14 18.6
3538	" . . .		3 April 27	5 48.6	45.3	20 18 54.8	4 35.4	6 33.9	14 19.4
3539	" . . .		3 May 20	5 48.8	45.3	20 18 59.8	4 39.1	6 34.1	14 20.7
3540	" . . .	1	3 May 31	5 48.7	45.2	20 18 55.6	4 40.8	6 33.9	14 14.8
3541	" . . .		3 June 2	5 48.4	45.3	20 19 0.9	4 41.2	6 33.7	14 19.7
3542	" . . .		3 June 3	5 48.4	45.3	20 19 0.3	4 41.4	6 33.7	14 18.9
3543	" . . .		3 July 5	5 48.5	45.6	20 19 1.5	4 45.3	6 34.1	14 16.2
3544	" . . .	1	3 July 8	5 48.7	45.6	20 19 1.3	4 45.4	6 34.3	14 15.9
3545	" . . .	1	3 July 10	5 48.3	45.6	20 19 2.7	4 45.6	6 33.9	14 17.1
3546	" . . .	1	3 July 19	5 48.2	45.7	20 19 1.6	4 46.2	6 33.9	14 15.4
3547	" . . .		3 July 26	5 48.2	45.8	20 19 2.7	4 46.4	6 34.0	14 16.3
3548	" . . .		3 July 29	5 47.8	45.8	20 19 2.2	4 46.5	6 33.6	14 15.7
3549	" . . .		4 May 25	5 51.8	42.2	20 18 37.3	4 21.3	6 34.0	14 16.0
3550	" . . .		4 June 5	(5)		20 18 41.0	4 22.9	(6)	14 18.1
3551*	" . . .		4 June 8	5 51.8	42.2	20 18 39.5	4 23.4	6 34.0	14 16.1
3552	" . . .		4 June 16	5 51.3	42.3	+20 18 42.2	4 24.5	6 33.6	14 17.7
3553	Lalande 26149 .	8	3 May 4	6 37.9	50.9	− 4 57 48.0	4 33.4	14 7 28.8	− 5 2 21.4
3554*	Brisbane 4852 .	6	3 April 25	6 42.1	53.8	−17 42 16.7	4 32.9	14 7 35.9	−17 46 49.6
3555	Flamsteed, B 1955	7	5 April 9	7 41.1	33.7	+40 44 33.0	3 55.2	14 8 14.8	+40 40 37.8
3556	100 Virginis λ		3 April 3	7 25.4	52.9	−12 22 0.7	4 33.7	14 8 18.3	−12 26 34.4
3557	" . . .		3 April 4	7 26.3	52.9	12 22 1.3	4 33.6	8 19.2	26 34.9
3558	" . . .		3 May 9	7 25.4	52.8	−12 21 55.6	4 32.3	8 18.2	26 27.9
3559	Johnson 3174 .	6.7	3 May 12	7 44.3	36.3	+46 34 27.2	4 40.2	14 8 20.6	+46 29 47.0
3560	" . . .		3 May 31	7 44.6	36.4	46 34 25.6	4 44.6	8 21.0	29 41.0
3561	19 Boötis λ		3 May 20	8 10.9	36.1	+47 5 25.8	4 42.0	14 8 47.0	+47 0 43.8
3562	102 Virginis υ¹	6	3 May 16	8 24.7	50.1	− 1 15 28.6	4 32.9	14 9 14.8	− 1 20 1.5
3563	18 Boötis . . .	6	3 April 21	8 48.7	46.8	+14 0 34.8	4 31.7	14 9 35.5	+13 56 3.1
3564	" . . .		3 April 27	8 48.8	46.8	14 0 36.3	4 32.5	9 35.6	56 3.8
3565*	Piazzi 52. . .	7	3 May 12	9 46.9	34.5	+49 0 41.6	4 38.1	14 10 21.4	+48 56 3.5
3566	Lalande 26242 .	7	3 May 31	10 37.3	51.4	− 7 5 39.6	4 30.8	14 11 28.7	− 7 10 10.4
3567	Groombridge 2100	7	5 April 9	10 59.9	33.9	+39 47 1.3	3 52.6	14 11 33.8	+39 43 8.7
3568	103 Virginis υ²		3 April 3	10 50.6	50.4	− 0 59 29.2	4 29.6	14 11 41.0	− 1 3 58.8
3569*	" . . .		3 April 4	10 51.0	50.4	0 59 26.4	4 29.6	11 41.4	3 56.0
3570	" . . .		3 April 7	10 51.8	50.4	0 59 27.6	4 29.6	11 42.2	3 57.2
3571	" . . .	7	3 May 9	10 50.1	50.1	0 59 23.7	4 30.6	11 40.2	3 54.3
3572	" . . .	6	3 May 16	10 50.3	50.0	0 59 24.7	4 31.0	11 40.3	3 55.7
3573	" . . .	7.8	4 June 5	10 53.4	46.6	0 59 51.1	4 14.0	11 40.0	4 5.1
3574	569 Mayer . .	7	3 June 2	11 13.3	51.3	6 45 56.3	4 30.8	14 12 4.6	6 50 27.1
3575	2 Libræ . . .		3 April 16	11 49.0	52.4	10 42 59.7	4 29.2	14 12 41.4	−10 47 28.9
3576	" . . .	7.8	3 April 25	11 48.9	52.3	10 43 2.8	4 29.0	12 41.2	47 31.8
3577*	Lalande 26287,8 .	7	3 April 18	12		15 6 32.4	4 29.3	14 13	−15 11 1.7
3578*	Lacaille 5929 .	4	3 May 15	12 31.0	55.3	−23 48 55.2	4 26.9	14 13 26.3	−23 53 22.1
3579	Lalande 26300 .	7.8	3 April 27	12 44.7	42.3	+30 21 56.1	4 30.3	14 13 27.0	+30 17 25.8
3580	571 Mayer . .	7.8	3 April 25	13 4.6	52.3	−10 40 44.0	4 28.1	14 13 56.9	−10 45 12.1
3581	" . . .	6.7	3 May 13	13 5.2	52.2	−10 40 51.0	4 28.0	13 57.4	45 19.0
3582	Lalande 26310 .	7.8	3 May 12	13 22.8	41.2	+33 30 10.4	4 33.2	14 14 4.0	+33 25 37.2
3583*	Lalande 26311 .	6.7	3 April 21	13 25.3	43.5	26 19 30.6	4 29.2	14 14 8.8	+26 15 1.4
3584	" . . .	7.6	3 May 9	13 24.4	43.4	26 19 37.1	4 31.7	14 7.8	15 5.4
3585	" . . .	6	3 May 31	13 24.9	43.4	26 19 35.7	4 35.8	14 8.3	14 59.9
3586	Lalande 26341 .	6	3 May 12	14 25.3	42.7	28 24 8.5	4 31.6	14 15 8.0	+28 19 36.9
3587	" . . .		4 June 5	14 27.5	39.7	28 23 55.6	4 16.7	15 7.2	19 38.9
3588	" . . .	7	5 April 9	14 30.9	37.1	+28 23 29.3	3 49.6	15 8.0	19 39.7
3589*	104 Virginis . .		3 April 3	16 4.3	51.4	− 5 8 10.8	4 25.7	14 16 55.7	− 5 12 36.5
3590	" . . .		3 April 4	14 16 4.4	+ 51.4	− 5 8 15.9	− 4 25.6	14 16 55.8	− 5 12 41.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3591	104 Virginis . .		3 April 16	14 16 4.1	+ 51.2	— 5 8 9.1	— 4 25.4	14 16 55.3	— 5 12 34.5
3592	" . . .	.	3 May 4	16 4.6	51.0	— 5 8		16 55.6	12
3593	Lalande 26389	6.7	3 May 29	16 8.9	47.4	+ 9 21 42.1	4 29.5	14 16 56.3	+ 9 17 12.6
3594	22 Boötis f	5	3 April 21	16 24.6	45.1	20 12 26.3	4 25.4	14 17 9.7	+20 8 0.9
3595	" . . .		3 April 27	16 24.3	45.0	20 12 25.6	4 26.3	17 9.3	7 59.3
3596	" . . .		3 May 9	16 23.0	45.0	20 12 28.0	4 28.3	17 8.0	7 59.7
3597	" . . .		3 May 31	16 24.1	45.0	20 12 22.7	4 31.8	17 9.1	7 50.9
3598	" . . .		4 June 8	16 28.0	41.9	20 12 9.1	4 15.1	17 9.9	7 54.0
3599	Flamsteed, B.1980	6	3 May 12	16 41.0	38.8	39 22 43.1	4 31.3	14 17 19.8	+39 18 11.8
3600	" . . .	6.7	5 April 9	16 44.7	33.7	+39 21 57.7	3 51.1	17 18.4	18 6.6
3601	574 Mayer . .	7	3 May 13	17 0.4	51.9	— 9 1 38.2	4 24.8	14 17 52.3	— 9 6 3.0
3602	105 Virginis φ		3 April 3	17 4.8	50.5	1 15 0.0	4 24.3	14 17 55.3	— 1 19 24.3
3603	" . . .		3 April 4	17 4.4	50.5	1 15 1.2	4 24.3	17 54.9	19 25.5
3604	" . . .		3 April 7	17 4.1	50.5	1 14 57.2	4 24.3	17 54.6	19 21.5
3605	" . . .		3 May 16	17 5.1	50.1	— 1 14 59.2	4 25.7	17 55.2	19 24.9
3606	Lalande 26417 .	7.8	3 April 19	17 11.7	46.3	+15 43 55.2	4 24.4	14 17 58.0	+15 39 30.8
3607	106 Virginis . .		3 May 4	17 18.6	51.2	— 5 55 15.2	4 24.5	14 18 9.8	— 5 59 39.7
3608	Bessel, W.466 .	6.7	3 May 12	18 55.3	37.5	+42 0 13.5	4 29.6	14 19 32.8	+41 55 43.9
3609	" . . .	7	3 May 31	18 54.7	37.6	42 0 15.6	4 34.1	19 32.3	55 41.5
3610	" . . .	7.8	5 April 9	18 58.9	32.6	41 59 29.9	3 46.3	19 31.5	55 43.6
3611*	Piazzi 97 . . .	7	3 April 27	19 5.5	43.1	26 49 35.8	4 24.4	14 19 48.6	+26 45 11.1
3612*	" . . .	7	4 June 5	19 8.4	40.1	26 49 27.7	4 14.0	19 48.5	45 13.7
3613	" . . .		4 June 16	19 9.1	40.1	26 49 33.3	4 15.7	19 49.2	45 17.6
3614	Groombridge 2116	6.7	3 May 12	21 6.0	37.0	42 46 47.8	4 27.6	14 21 43.0	+42 42 20.2
3615	" . . .	6.7	3 May 31	21 6.3	37.1	+42 46 50.2	4 32.3	21 43.4	42 17.9
3616	Lalande 26517,8	7	3 April 18	20 50.4	55.6	—23 3 11.9	4 22.6	14 21 46.0	—23 7 34.5
3617	Lalande 26525 .	8	3 April 19	21 26.5	45.4	+18 36 33.0	4 20.4	14 22 11.9	+18 32 12.6
3618*	Piazzi 111 . .	7	3 May 4	22 16.6	51.2	— 5 54 34.0	4 20.2	14 23 7.8	— 5 58 54.2
3619	25 Boötis ρ		3 April 16	22 31.1	41.6	+31 19 41.8	4 19.3	14 23 12.7	+31 15 22.5
3620	" . . .		3 April 21	22 31.2	41.5	31 19 41.3	4 20.4	23 12.7	15 20.9
3621	" . . .		3 April 25	22 31.5	41.5	31 19 41.2	4 21.2	23 13.0	15 20.0
3622	" . . .		3 May 29	22 31.0	41.4	31 19 47.6	4 28.3	23 12.4	15 19.3
3623	" . . .	.	4 June 8	22 33.9	38.6	31 19 30.9	4 12.6	23 12.5	15 18.3
3624*	26 Boötis . . .		3 April 27	22 43.0	44.0	23 13 13.9	4 20.9	14 23 27.0	+23 8 53.0
3625	" . . .		3 May 13	22 43.3	43.9	23 13 11.6	4 23.7	23 27.2	8 47.9
3626	Lalande 26560 .	8.7	3 April 25	22 58.7	41.5	31 13 7.4	4 20.8	14 23 40.2	+31 8 46.6
3627	Bessel, W.550 .	7	3 May 12	23 5.0	36.1	44 20 51.2	4 26.1	14 23 41.1	+44 16 25.1
3628	" . . .	8	3 May 31	23 4.4	36.2	44 20 50.2	4 30.8	23 40.6	16 19.4
3629	27 Boötis γ		3 April 3	23 22.7	38.7	39 15 35.0	4 16.2	14 24 1.4	+39 11 18.8
3630	" . . .		3 April 4	23 22.7	38.7	39 15 37.7	4 16.4	24 1.4	11 21.3
3631	" . . .		3 July 8	23 22.3	38.9	39 15 57.9	4 35.8	24 1.2	11 22.1
3632	" . . .		3 July 10	23 22.4	38.8	39 15 58.5	4 35.9	24 1.2	11 22.6
3633	" . . .		3 July 26	23 21.7	39.2	39 16 0.0	4 36.9	24 0.9	11 23.1
3634	Piazzi 120 . .	9	3 May 16	24 45.4	48.8	4 25 24.7	4 20.7	14 25 34.2	+ 4 21 4.0
3635	28 Boötis σ		3 April 16	25 16.3	41.7	30 41 33.4	4 16.7	14 25 58.0	+30 37 16.7
3636	" . . .		3 April 21	25 15.6	41.6	30 41 31.7	4 18.5	25 57.2	37 13.2
3637	" . . .		3 April 25	25 16.5	41.6	30 41 34.8	4 17.6	25 58.1	37 17.2
3638*	" . . .		3 May 29	25 16.5	41.5	30 41 37.8	4 25.7	25 58.0	37 12.1
3639	" . . .	5	5 April 9	25 21.1	36.1	30 40 53.1	3 41.1	25 57.2	37 12.0
3640	Lalande 26645 .	7	3 April 27	26 21.2	43.6	24 11 56.3	4 17.4	14 27 4.8	+24 7 38.9
3641	" . . .	7	3 May 12	26 21.7	43.5	24 11 56.9	4 20.2	27 5.2	7 36.7
3642	" . . .	6.7	3 May 13	26 20.8	43.5	24 11 56.9	4 20.5	27 4.3	7 36.4
3643	" . . .	6	3 May 31	26 20.6	43.5	24 12 0.6	4 23.8	27 4.1	7 36.8
3644	" . . .	5.6	4 June 16	26 23.7	40.6	+24 11 48.3	4 9.0	27 4.3	7 39.3
3645	Piazzi 133 . .	6.7	3 May 4	26 32.9	51.0	— 4 35 58.3	4 17.2	14 27 23.9	— 4 40 15.5
3646	Lalande 26667,8	7.8	3 April 3	26 54.0	42.5	+28 26 0.7	4 13.0	14 27 36.5	+28 21 47.7
3647	" . . .	7.8	3 April 4	26 54.8	42.5	28 25 58.8	4 13.3	27 37.3	21 45.5
3648	" . . .	7	3 May 9	26 55.2	42.2	+28 26 8.7	4 19.7	27 37.4	21 49.0
3649*	3 Libræ . . .	6	3 April 18	26 55.9	56.1	—24 4 55.1	4 17.4	14 27 52.0	—24 9 12.5
3650*	Piazzi 140 . .	6.7	3 April 21	14 28 11.4	+ 45.0	+19 14 51.0	4 14.6	14 28 56.4	+19 10 36.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3651	Piazzi 140 . .	6.7	3 April 25	14 28 10.6	+ 45.0	+19 14 48.7	— 4 15.2	14 28 55.6	+19 10 33.5
3652	" . . .	6	3 April 27	28 11.2	45.0	19 14 48.6	4 15.4	28 56.2	10 33.2
3653	" . . .	6	3 May 12	28 12.0	44.9	19 14 46.5	4 18.0	28 56.9	10 28.5
3654	" . . .	6	3 May 13	28 10.9	44.9	19 14 47.0	4 18.0	28 55.8	10 29.0
3655	" . . .	6.7	5 April 9	28 16.1	39.1	19 14 9.3	3 39.1	28 55.2	10 30.2
3656	Lalande 26735 .	7	3 May 29	30 4.3	47.3	9 54 57.4	4 17.1	14 30 51.6	+ 9 50 40.3
3657	Piazzi 145 . .	6	3 April 3	30 22.5	46.5	14 28 11.6	4 10.8	14 31 9.0	+14 24 0.8
3658	" . . .	6	3 April 4	30 22.8	46.5	14 28 16.7	4 10.7	31 9.3	24 6.0
3659	" . . .	6	3 April 27	30 23.5	46.2	14 28 13.7	4 13.2	31 9.7	24 0.5
3660	Lalande 26747,8 .	6	3 May 12	30 33.8	43.8	22 54 36.5	4 16.1	14 31 17.6	+22 50 20.4
3661	" . . .	6	3 May 13	30 33.3	43.8	22 54 35.6	4 16.4	31 17.1	50 19.2
3662	29 Boötis π		3 April 16	30 34.6	45.6	17 21 13.1	4 11.8	14 31 20.2	+17 17 1.3
3663	" . . .		3 April 19	30 34.0	45.5	17 21 7.8	4 12.2	31 19.5	16 55.6
3664	" . . .		3 April 21	30 34.7	45.5	17 21 14.3	4 12.5	31 20.2	17 1.8
3665	" . . .		3 April 25	30 34.5	45.5	17 21 9.3	4 12.9	31 20.0	16 56.4
3666	" . . .		4 June 8	30 37.6	42.1	17 21		31 19.7	17
3667	30 Boötis ζ		3 April 3	30 48.9	46.5	14 39 43.1	4 10.2	14 31 35.4	+14 35 32.9
3668	" . . .		3 April 4	30 49.4	46.5	14 39 45.1	4 10.4	31 35.9	35 34.7
3669	" . . .		3 April 27	30 49.8	46.2	14 39 51.7	4 12.8	31 36.0	35 38.9
3670	" . . .		3 April 28	30 49.8	46.2	14 39 48.7	4 13.1	31 36.0	35 35.6
3671	" . . .		3 July 8	30 49.8	46.3	14 39 57.7	4 22.2	31 36.1	35 35.5
3672	" . . .		3 July 10	30 50.0	46.3	14 39 55.9	4 22.5	31 36.3	35 33.4
3673	" . . .		3 July 19	30 49.9	46.3	14 39 55.2	4 23.2	31 36.2	35 32.0
3674*	" . . .		3 July 26	30 50.3	46.4	14 40 0.2	4 23.5	31 36.7	35 36.7
3675	" . . .		3 July 29	30 49.7	46.5	+14 39 57.1	4 23.7	31 36.2	35 33.4
3676	4 Libræ . . .	6	3 April 18	30 46.2	56.2	—24 3 51.7	4 13.9	14 31 42.4	—24 8 5.6
3677	" . . .		3 May 4	30 45.9	56.0	24 3 53.8	4 12.4	31 41.9	8 6.2
3678*	" . . .	6	3 May 16	30 45.5	55.8	—24 3 53.3	4 11.5	31 41.3	8 4.8
3679	Lalande 26765 .	7	3 May 31	31 2.6	41.0	+31 23 1.2	4 20.8	14 31 43.6	+31 18 40.4
3680	" . . .	7.8	4 June 16	31 4.5	38.3	31 22 53.9	4 4.8	31 42.8	18 49.1
3681	31 Boötis . . .		3 May 29	31 2.3	47.2	9 5 41.7	4 16.2	14 31 49.5	+ 9 1 25.5
3682	Lalande 26769 .	7	3 May 31	31 12.8	41.0	+31 27 35.2	4 20.7	14 31 53.8	+31 23 14.5
3683	107 Virginis μ		3 April 7	31 40.7	51.3	— 4 42 28.1	4 11.7	·14 32 32.0	— 4 46 39.8
3684	Lalande 26793,4	8.9	5 April 9	31 54.8	39.0	+19 25 12.9	3 36.0	14 32 33.8	+19 21 36.9
3685	Piazzi 160 . .	7	3 May 9	32 2.3	44.0	22 3 38.0	4 14.1	14 32 46.3	+21 59 23.9
3686	Lalande 26815 .	7.6	3 May 12	32 29.3	45.8	15 38 18.2	4 13.4	14 33 15.1	+15 34 4.8
3687	34 Boötis . . .	6	3 April 16	33 55.1	42.4	27 27 17.8	4 8.3	14 34 37.5	+27 23 9.5
3688	" . . .	6	3 April 19	33 55.8	42.4	27 27 13.3	4 8.9	34 38.2	23 4.4
3689	" . . .	6	3 April 21	33 56.0	42.3	27 27 17.0	4 9.3	34 38.3	23 7.7
3690	" . . .	6	3 April 25	33 56.0	42.3	27 27 16.3	4 10.1	34 38.3	23 6.2
3691	" . . .		3 May 13	33 56.0	42.2	27 27 18.8	4 13.8	34 38.2	23 5.0
3692	" . . .		3 May 31	33 55.6	42.2	+27 27 19.7	4 17.3	34 37.8	23 2.4
3693	Lalande 26855 .	6	3 April 18	33 44.4	56.1	—22 13 35.9	4 11.0	14 34 40.5	—22 17 46.9
3694*	" . . .	6	3 May 16	33 44.2	55.8	—22 13 37.7	4 9.0	34 40.0	17 46.7
3695*	Lalande 26870,1	9	5 April 9	34 17.2	38.9	+19 23 7.7	3 34.1	14 34 56.1	+19 19 33.6
3696	5 Libræ . . .		3 May 4	34 4.2	53.5	—14 32 18.1	4 9.5	14 34 57.7	—14 36 27.6
3697	Lalande 26872,4	9	3 April 4	34 10.3	48.0	+ 8 37 23.1	4 7.8	14 34 58.3	+ 8 33 15.3
3698	" . . .		3 May 29	34 10.8	47.6	8 37 28.1	4 12.7	34 58.4	32 15.4
3699*	108 Virginis . .		3 April 7	34 30.1	49.8	1 38 23.6	4 8.3	14 35 19.9	+ 1 34 15.3
3700	35 Boötis o		3 April 27	35 9.8	45.2	17 53 17.4	4 8.4	14 35 55.0	+17 49 9.0
3701	" . . .	4	3 May 9	35 9.3	45.1	17 53 18.9	4 10.7	35 54.4	49 8.2
3702	" . . .		3 May 12	35 10.2	45.1	17 53 16.7	4 11.1	35 55.3	49 5.6
3703	Lalande 26901 .	7	5 April 9	35 26.3	38.8	19 47 38.9	3 33.0	14 36 5.1	+19 44 5.9
3704	109 Virginis . .	4.5	3 April 3	39 19.6	49.5	2 48 46.0	4 7.3	14 36 9.1	+ 2 44 38.7
3705	36 Boötis ε		3 April 28	35 33.3	42.0	27 59 35.6	4 9.2	14 36 15.3	+27 55 26.4
3706	" . . .		3 May 13	35 33.0	42.0	27 59 40.8	4 12.3	36 15.0	55 28.5
3707	" . . .		3 July 8	35 32.6	42.2	27 59 49.6	4 21.7	36 14.8	55 27.9
3708	" . . .		3 July 10	35 32.6	42.3	27 59 49.8	4 22.0	36 14.9	55 27.8
3709	" . . .		3 July 19	35 32.6	42.4	27 59 50.5	4 22.7	36 15.0	55 27.8
3710	" . . .		3 July 26	14 35 32.8	+ 42.5	+27 59 51.6	— 4 23.2	14 36 15.3	+27 55 28.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3711	36 Boötis ε		4 June 16	14 35 36.3	+ 39.1	+27 59 29.6	— 4 1.8	14 36 15.4	+27 55 27.8
3712	Bessel, W.728	8	3 April 4	35 44.1	47.4	10 34 46.0	4 6.5	14 36 32.5	+10 30 39.5
3713*	Piazzi 177	7	3 April 27	35 48.3	45.2	17 43 1.3	4 8.1	14 36 33.5	+17 38 53.2
3714	“	7.8	3 May 9	35 47.3	45.1	17 43 5.6	4 10.0	36 32.4	38 55.6
3715	“	7	3 May 12	35 48.9	45.1	17 42 58.5	4 10.4	36 34.0	38 48.1
3716	Flamsteed, B.2018	7	3 April 3	36 28.9	49.2	2 57 4.8	4 6.0	14 37 18.1	+ 2 52 58.8
3717*	“		3 April 7	(36)		2 57 12.3	4 6.0	(37)	53 6.3
3718*	Lalande 26963	7	3 April 16	37 33.9	44.6	19 57 36.2	4 4.8	14 38 18.5	+19 53 31.4
3719	“	8	3 April 19	37 34.6	44.6	19 57 39.3	4 5.6	38 19.2	53 33.7
3720	“	7.8	3 April 25	37 33.5	44.6	19 57 43.8	4 6.3	38 18.1	53 37.5
3721	“	7	3 April 28	37 33.9	44.6	19 57 33.8	4 6.7	38 18.5	53 27.1
3722*	“	7.8	3 May 9	37 34.0	44.5	+19 57 40.2	4 8.5	38 18.5	53 31.7
3723	7 Libræ μ	5	3 May 16	37 29.8	53.2	—13 14 16.3	4 6.3	14 38 23.0	—13 18 22.6
3724*	6 Libræ	5	3 May 4	37 38.1	57.2	—27 3 4.2	4 6.2	14 38 35.3	—27 7 10.4
3725	Lalande 26992	6	3 May 12	38 48.9	42.7	+25 16 20.2	4 8.4	14 39 31.6	+25 12 11.8
3726	“	6	3 May 29	38 48.3	42.7	25 16 25.7	4 11.7	39 31.0	12 14.0
3727	“	6.7	4 June 16	38 51.2	39.8	25 16 11.0	3 58.3	39 31.0	12 12.7
3728	“	6.7	5 April 9	38 53.0	37.2	+25 15 46.8	3 29.9	39 30.2	12 16.9
3729	9 Libræ α²		3 April 3	38 56.8	54.2	—15 7 59.1	4 6.6	14 39 51.0	—15 12 5.7
3730	“		3 April 18	(38)		15 7 57.3	4 5.6	(39)	12 2.9
3731	“		3 July 10	38 56.8	53.8	15 8 0.5	4 5.3	39 50.6	12 5.8
3732	“		3 July 19	38 56.9	53.8	15 8 3.6	4 5.6	39 50.7	12 9.2
3733	“		3 July 26	38 56.7	53.9	15 8 1.8	4 5.9	39 50.6	12 8.7
3734	“		3 July 29	38 56.8	54.0	—15 8 2.7	4 6.0	39 50.8	12 8.7
3735	Lalande 27024	7	3 April 16	39 34.2	44.5	+20 25 0.9	4 2.7	14 40 18.7	+20 20 58.2
3736	“	7	3 May 13	39 34.5	44.2	+20 24 59.2	4 7.3	40 18.7	20 51.9
3737	10 Libræ		3 May 16	39 44.9	54.3	—17 27 9.7	4 3.7	14 40 39.2	—17 31 13.4
†3738	Lalande 27036	8	3 May 9	39 58.4	44.2	+20 25 4.3	4 6.2	14 40 42.6	+20 20 58.1
3739*	Lalande 27038	7.8	3 April 4	40 0.8	43.5	23 56 11.6	4 0.7	14 40 44.3	+23 52 10.9
3740	32 (Hev.) Boötis	6.7	3 April 25	40 40.5	41.3	29 31 6.7	4 3.5	14 41 21.8	+29 27 3.2
3741	“		4 June 16	(40)		29 31 5.7	3 57.6	(41)	27 8.1
3742	Lalande 27055	7	5 April 9	40		24 48 9.5	3 22.9	14 41	+24 44 46.6
3743*	Lalande 27069	8.9	3 April 4	41 5.2	43.5	23 48 46.1	3 59.6	14 41 48.7	+23 44 46.5
3744	“	8	3 May 12	41 7.0	43.1	23 48 48.2	4 5.8	41 50.1	44 42.4
3745*	“	9	3 May 29	41 6.2	43.1	23 48 55.2	4 9.1	41 49.3	44 46.1
3746	37 Boötis ξ		3 April 16	41 25.8	44.5	20 0 21.8	4 1.0	14 42 10.3	+19 56 20.8
3747	“		3 April 19	41 25.5	44.5	20 0 17.1	4 1.5	42 10.0	56 15.6
3748*	“		3 April 21	41 25.4	44.5	20 0 19.4	4 1.8	42 9.9	56 17.6
3749	“	5	3 April 28	41 25.5	44.4	20 0 17.5	4 2.9	42 9.9	56 14.6
3750	“		3 May 20	41 24.9	44.3	+20 0 23.2	4 6.7	42 9.2	56 16.5
3751*	12 Libræ		3 May 4	41 48.7	56.3	—23 44 47.5	4 2.2	14 42 45.0	—23 48 49.7
3752	Piazzi 201	8	3 May 9	42 15.8	43.9	+21 11 19.8	4 4.1	14 42 59.7	+21 7 15.7
3753*	“	7.8	3 May 13	42 16.3	43.9	+21 11 13.5	4 4.7	43 0.2	7 8.8
3754*	13 Libræ ξ¹		3 April 3	42 39.6	53.2	—11 0 21.9	4 2.3	14 43 32.8	—11 4 24.2
3755	Anonyma	7	3 May 20	43 15.3	45.2	+16 35 49.2	4 4.4	14 44 0.5	+16 31 44.8
3756	“		3 May 29	43 15.6	45.2	16 35 47.2	4 5.7	44 0.8	31 41.5
3757	Lalande 27131	8.9	4 June 16	43 29.1	38.7	28 23 22.6	3 48.7	14 44 7.8	+28 19 33.9
3758	Lalande 27137	7	3 April 16	43 34.9	44.5	20 1 55.4	3 58.4	14 44 19.4	+19 57 57.0
3759	“	7	3 April 19	43 33.4	44.4	20 1 51.7	3 59.4	44 17.8	57 52.3
3760	“	6.7	3 April 27	43 35.3	44.3	20 1 54.3	4 0.9	44 19.6	57 53.4
3761	“	6	3 April 28	43 35.3	44.3	20 1 50.2	4 0.7	44 19.6	57 49.5
3762	“	7.6	3 May 12	43 35.8	44.2	20 1 54.9	4 3.0	44 20.0	57 51.9
3763	“	7	3 May 13	43 34.9	44.2	20 1 53.7	4 3.3	44 19.1	57 50.4
3764*	Lalande 27140	6.7	5 April 9	43 47.4	34.7	32 48 36.2	3 25.2	14 44 22.1	+32 45 11.0
3765	Lalande 27138	7	3 April 25	43 38.9	44.1	+20 46 58.7	4 0.0	14 44 23.0	+20 42 58.7
3766	14 Libræ		3 April 18	44 55.4	56.8	—24 33 22.9	4 0.9	14 45 52.2	—24 37 23.8
3767*	“		3 May 4	44 56.0	56.6	24 33 30.7	3 59.3	45 52.6	37 30.0
3768	“	6.7	3 May 16	44 55.4	56.5	24 33 34.3	3 58.5	45 51.9	37 32.8
3769	15 Libræ ξ²		3 April 3	45 3.0	53.1	—10 31 34.5	4 0.0	14 45 56.1	—10 35 34.5
3770	Piazzi 215	6	3 May 29	14 45 19.8	+ 39.7	+32 54 17.3	— 4 6.3	14 45 59.5	+32 50 11.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3771	Piazzi 215 . .	7	5 April 9	14 45 24.6	+ 34.6	+32 53 35.2	− 3 23.7	14 45 59.2	+32 50 11.5
3772	Lalande 27195 .	7	3 April 21	45 27.9	40.6	30 56 58.6	3 57.8	14 46 8.5	+30 53 0.8
3773	" . . .	7	4 June 16	45 30.0	37.7	30 56 53.0	3 53.4	46 7.7	52 59.6
3774	Piazzi 221 . .	7	3 April 19	46 1.6	45.8	15 19 42.8	3 56.9	14 46 47.4	+15 15 45.9
3775	" . . .	6.7	3 May 9	46 1.4	45.6	15 19 48.1	4 0.2	46 47.0	15 47.9
3776	" . . .	6	3 May 13	46 1.7	45.6	15 19 44.0	4 0.4	46 47.3	15 43.8
3777	Lalande 27227 .	9	3 April 4	46 28.0	45.2	17 59 11.9	3 52.7	14 47 13.2	+17 55 19.2
3778*	" . . .	9	3 May 12	46 29.4	44.8	17 59 16.7	3 59.8	47 14.2	55 16.9
3779	1 Serpentis . .	6	3 April 27	46 28.8	48.0	0 42 51.0	3 57.5	14 47 16.8	+ 0 38 53.5
3780	" . . .		3 April 28	46 29.3	48.0	0 42 48.0	3 57.6	47 17.3	38 50.4
3781	Lalande 27241,2	7	5 April 9	47 5.8	34.5	33 10 19.7	3 22.3	14 47 40.3	+33 6 57.4
3782	Piazzi 226 . .	6.7	3 April 16	47 6.6	45.2	17 16 3.1	3 55.4	14 47 51.8	+17 12 7.7
3783	" . . .	6	3 April 25	47 6.9	45.1	17 15 58.8	3 55.5	47 52.0	12 3.3
3784	" . . .		3 May 20	47 7.4	44.9	17 16 3.9	4 0.6	47 52.3	12 3.3
3785	Piazzi 227 . .	6.7	3 May 12	47 20.1	43.4	22 26 12.9	3 59.4	14 48 3.5	+22 22 13.5
3786*	" . . .	7	3 May 15	47 19.5	43.4	+22 26 13.9	4 0.1	48 2.9	22 13.8
3787*	18 Libræ . . .		3 April 3	47 12.4	53.0	−10 15 53.5	3 57.7	14 48 5.4	−10 19 51.2
3788	Lalande 27277,8	8	3 April 21	47 56.4	42.3	+26 11 54.7	3 55.1	14 48 38.7	+26 7 59.6
3789	Piazzi 231 . .	7	3 May 13	48 3.9	45.6	14 54 43.6	3 58.2	14 48 49.5	+14 50 45.4
3790	Piazzi 232 . .	7	3 May 29	48 11.2	42.3	25 33 1.6	4 2.3	14 48 53.5	+25 28 59.3
3791	" . . .	7.8	4 June 16	48 14.2	39.4	25 32 50.2	3 49.6	48 53.6	29 0.6
3792*	Lalande 27311 .	7.8	3 April 16	49 15.4	42.7	+25 2 45.2	3 52.7	14 49 58.1	+24 58 52.5
3793	Piazzi 233 . .	7.8	3 April 3	(49)		−10 3 20.3	3 56.8	14(50)	−10 7 17.1
3794	Piazzi 236 . .	7.8	3 April 21	49 21.3	42.3	+25 55 14.4	3 52.6	14 50 3.6	+25 51 21.8
3795	" . . .	7.8	3 May 12	49 21.0	42.1	+25 55 13.9	3 57.7	50 3.1	51 16.2
3796	19 Libræ δ		3 April 18	49 26.5	52.1	− 7 38 59.3	3 54.9	14 50 18.6	− 7 42 54.2
3797*	" . . .		3 May 4	49 26.8	51.9	7 39 3.2	3 54.6	50 18.7	42 57.8
3798	" . . .		3 May 16	49 26.7	51.8	− 7 39 1.8	3 55.2	50 18.5	42 57.0
3799*	Lalande 27325 .	7.8	3 April 19	49 48.2	45.6	+15 42 2.5	3 54.0	14 50 33.8	+15 38 8.5
3800	" . . .	8.9	3 May 9	49 48.2	45.4	15 42 13.0	3 55.9	50 33.6	38 17.1
3801*	" . . .	8	3 May 13	49 48.6	45.3	15 42 5.4	3 56.4	50 33.9	38 9.0
3802	" . . .		4 June 16	(49)		+15 41 57.9	3 45.8	(50)	38 12.1
3803	Lalande 27347 .	7.8	3 April 3	50 32.0	52.3	− 7 28 55.9	3 53.9	14 51 24.3	− 7 32 49.8
3804	" . . .		3 May 4	50 32.7	51.9	− 7 28 53.6	3 53.6	51 24.6	32 47.2
3805	2 Serpentis . .	6.7	3 April 27	50 45.5	49.7	+ 0 43 29.3	3 53.1	14 51 35.2	+ 0 39 36.2
3806	" . . .	6	3 April 28	50 44.8	49.7	0 43 27.2	3 53.3	51 34.5	39 33.9
3807	Piazzi 247 . .	6	3 April 4	51 11.3	43.5	22 54 32.6	3 49.1	14 51 54.8	+22 50 43.5
3808	" . . .	7	3 April 16	51 10.9	43.4	22 54 36.1	3 50.9	51 54.3	50 45.2
3809*	" . . .	6.7	3 April 25	51 11.2	43.2	22 54 36.2	3 52.3	51 54.4	50 43.9
3810	" . . .	7	3 May 12	51 12.0	43.1	22 54 40.8	3 55.4	51 55.1	50 45.4
3811*	" . . .	8	3 May 20	51 11.4	43.1	22 54 34.0	3 57.0	51 54.5	50 37.0
3812	Bessel, W.1189 .	7.6	4 June 16	50		+40 7 48.4	3 50.0	14 51	+40 3 58.4
3813	20 Libræ . . .		3 April 18	(51)		−24 25 12.1	3 54.5	14(52)	−24 29 6.6
3814*	" . . .		3 July 8	51 26.5	56.7	24 25 15.4	3 50.4	52 23.2	29 5.8
3815	" . . .		3 July 10	51 26.4	56.7	24 25 20.5	3 50.4	52 23.1	29 10.9
3816	" . . .		3 July 26	51 26.4	56.9	−24 25 15.6	3 50.7	52 23.3	29 6.3
3817	110 Virginis . .		3 April 7	(51)	49.4	+ 2 56 55.7	3 50.7	14(52)	+ 2 53 5.7
3818	" . . .	6	3 April 28	51 59.6	49.1	2 57 1.0	3 51.9	52 48.7	53 9.1
3819	" . . .	4.5	5 April 9	52 5.3	42.7	2 56 26.6	3 19.9	52 48.0	53 6.7
3820	Lalande 27406,7	7	3 April 19	52 31.3	45.2	16 54 27.0	3 50.1	14 53 16.5	+16 50 36.9
3821	" . . .	7.8	3 May 9	52 32.0	43.8	16 54 30.5	3 53.1	53 15.8	50 37.4
3822	41 Boötis ω		3 April 25	52 38.6	42.2	25 52 13.3	3 50.8	14 53 20.8	+25 48 22.5
3823	" . . .		3 May 13	52 38.6	42.0	25 52 20.3	3 54.5	53 20.6	48 25.8
3824	" . . .		3 May 15	52 39.0	42.0	25 52 17.9	3 55.0	53 21.0	48 22.9
3825*	Lalande 27422 .	8	3 April 16	53 16.2	44.6	18 49 55.1	3 58.4	14 54 0.8	+18 45 56.7
3826	42 Boötis β		3 April 28	53 49.5	35.6	41 15 0.4	3 50.9	14 54 25.1	+41 11 9.5
3827	" . . .		3 May 20	53 49.2	35.5	41 15 10.3	3 56.6	54 24.7	11 13.7
3828	" . . .		3 July 8	53 48.8	35.9	41 15 17.8	4 6.5	54 24.7	11 11.3
3829	" . . .		3 July 26	53 48.2	36.3	41 15 20.3	4 8.4	54 24.5	11 11.9
3830	Lalande 27442 .	8.9	3 April 3	14 53 39.0	+ 47.1	+11 35 12.1	− 3 47.6	14 54 26.1	+11 31 24.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3831	Piazzi 265 . .	8.9	3 May 13	14 54 31.5	+ 41.2	+27 56 10.8	— 3 52.7	14 55 12.7	+27 52 18.1
3832	" . . .	7	3 April 21	54 32.4	41.4	27 56 2.3	3 48.1	55 13.8	52 14.2
3833	" . . .		4 June 16	54 34.3	38.4	27 56 1.5	3 43.9	55 12.7	52 17.6
3834	Lalande 27470 .	7.8	3 April 27	54 40.7	43.8	20 41 36.9	3 49.0	14 55 24.5	+20 37 47.9
3835	" . .	9	3 May 29	54 41.0	43.7	+20 41 37.7	3 54.7	55 24.7	37 43.0
3836	21 Libræ ν¹		3 May 4	54 35.7	54.2	—15 24 23.5	3 49.7	14 55 29.9	—15 28 13.2
3837	" . . .		3 May 16	54 35.9	54.0	15 24 26.8	3 49.3	55 29.9	28 16.1
3838	22 Libræ ν²		3 May 4	54 47.0	54.2	15 38		14 55 41.2	—15 42
3839*	" . . .		3 May 16	54 46.5	54.1	—15 38 11.4	3 51.9	55 40.6	42 3.3
3840	43 Boötis ψ	4	3 April 4	55 10.8	41.7	+27 47 54.0	3 44.5	14 55 52.5	+27 44 9.5
3841	" . . .		3 April 21	55 11.6	41.5	27 47 54.2	3 47.3	55 53.1	44 6.9
3842	" . . .		3 April 25	55 11.4	41.4	27 47 57.4	3 48.3	55 52.8	44 9.1
3843	" . . .		3 May 12	55 12.1	41.3	27 47 54.0	3 51.7	55 53.4	44 2.3
3844*	" . . .		3 May 13	55 11.6	41.3	27 47 56.5	3 52.0	55 52.9	44 4.5
3845	" . . .		3 May 15	55 11.3	41.2	27 47 59.8	3 52.3	55 52.5	44 7.5
3846	" . . .		4 June 16	55 14.1	38.4	27 47 51.3	3 43.3	55 52.5	44 8.0
3847	" . . .	5	5 April 9	55 15.9	36.0	27 47 21.0	3 14.8	55 51.9	44 6.2
3848	44 Boötis . . .		3 April 28	56 41.2	31.2	48 30 1.0	3 48.3	14 57 12.4	+48 26 12.7
3849	Piazzi 281 . .	5.6	3 April 3	57 25.4	44.6	19 17 5.6	3 42.7	14 58 10.0	+19 13 22.9
3850	" . . .	6	3 April 4	57 25.4	44.6	19 17 2.3	3 42.9	58 10.0	13 19.4
3851	" . . .	6	3 May 9	57 26.1	44.1	+19 17 9.7	3 53.4	58 10.2	13 16.3
3852	Piazzi 282 . .	6.7	3 April 18	57 16.9	56.8	—23 8 44.4	3 48.5	14 58 13.7	—23 12 32.9
3853	45 Boötis c		3 April 16	57 48.8	42.2	+25 43 9.8	3 43.7	14 58 31.0	+25 39 26.1
3854	" . . .		3 April 19	57 48.9	42.2	25 43 8.5	3 44.3	58 31.1	39 24.2
3855	" . . .		3 April 25	57 48.5	42.1	25 43 8.5	3 45.3	58 30.6	39 23.2
3856	" . . .		3 April 27	57 48.8	42.0	25 43 9.2	3 45.6	58 30.8	39 23.6
3857	" . . .		3 May 12	57 49.4	42.0	25 43 8.5	3 48.7	58 31.4	39 19.8
3858	" . . .		3 May 20	57 48.7	41.9	25 43 13.8	3 50.4	58 30.6	39 23.4
3859	" . . .		3 May 29	57 48.8	41.9	25 43 13.6	3 52.2	58 30.7	39 21.4
3860	" . . .	5.6	5 April 9	57 53.7	36.6	25 42 35.3	3 12.6	58 30.3	39 22.7
3861	Lalande 2575 .	7	3 May 13	58 8.1	37.2	37 17 43.1	3 49.7	14 58 45.3	+37 13 53.4
3862	Lalande 27602 .	8	4 June 16	58 54.4	37.7	29 21 18.2	3 39.9	14 59 32.1	+29 17 38.3
3863*	46 Boötis b		3 April 21	59 4.6	41.1	27 8 16.1	3 43.2	14 59 45.7	+27 4 32.9
3864	Piazzi 291 . .	6.7	3 April 16	59 10.9	42.1	25 56 38.1	3 42.4	14 59 53.0	+25 52 55.7
3865	" . . .	6	3 April 19	59 11.0	42.0	25 56 35.9	3 42.9	59 53.0	52 53.0
3866*	" . . .	7	3 April 25	59 10.8	41.9	25 56 38.7	3 43.8	59 52.7	52 54.9
3867	" . . .		3 April 27	59 11.1	41.9	25 56 37.9	3 44.2	59 53.0	52 53.7
3868	" . . .	6	3 May 12	59 11.5	41.8	25 56 38.7	3 47.1	59 53.3	52 51.6
3869	" . . .	6	3 May 29	14 59 10.8	41.7	25 56 42.6	3 50.6	59 52.5	52 52.0
3870	Lalande 27646,7 .	8.9	3 April 4	15 0 2.9	42.5	25 30 17.7	3 39.4	15 0 45.4	+25 26 38.3
3871	" . . .	7.8	3 April 28	0 2.9	42.0	25 30 22.2	3 43.5	0 44.9	26 38.7
3872	Lalande 27644 .	7.8	3 May 15	15 0 13.2	38.5	+34 5 48.5	3 47.6	15 0 51.7	+34 2 0.9
3873	24 Libræ i¹		3 May 4	14 59 56.1	55.3	—18 57 42.9	3 44.3	15 0 51.4	—19 1 27.2
3874	" . . .		3 May 16	59 55.5	55.2	18 57 41.8	3 43.8	0 50.7	1 25.6
3875*	" . . .		3 July 8	14 59 55.0	55.2	18 57 44.9	3 43.4	0 50.2	1 28.3
3876	Lacaille 6271	7	3 April 18	15 0 41.5	56.9	23 10 54.6	3 45.0	15 1 38.4	—23 14 39.6
3877	25 Libræ i²		3 May 4	1 1.6	55.3	—18 49 17.4	3 43.1	15 1 56.9	—18 53 0.5
3878	Lalande 27705 .	8	3 April 25	1 47.7	43.6	+20 52 12.0	3 40.9	15 2 31.3	+20 48 31.1
3879*	" . . .	7.8	3 May 20	1 48.1	43.4	20 52 12.5	3 45.4	2 31.5	48 27.1
3880	Flamsteed, B.2072	8	3 May 13	1 54.5	38.6	33 54 20.3	3 45.2	15 2 33.1	+33 50 35.1
3881	" . . .	7.8	3 May 15	1 54.1	38.6	33 54 23.1	3 45.7	2 32.7	50 37.4
3882	" . . .	7	4 June 16	1 56.8	35.9	33 54 17.9	3 37.8	2 32.7	50 40.1
3883	Lalande 27718 .	6	3 April 16	2 14.6	44.1	19 47 52.9	3 39.0	15 2 58.7	+19 44 13.9
3884	" . . .	6.7	3 May 9	2 13.9	43.8	19 47 54.6	3 42.8	2 57.7	44 11.8
3885	" . . .	6	3 May 12	2 15.6	43.8	19 47 55.2	3 43.3	2 59.4	44 11.9
3886	Piazzi 13 . . .	8	3 April 19	2 28.4	43.0	23 8 12.6	3 39.2	15 3 11.4	+23 4 33.4
3887	" . . .	6.7	3 May 29	2 28.6	42.6	+23 8 18.7	3 47.2	3 11.2	4 31.5
3888*	26 Libræ		3 May 16	2 23.0	54.6	—16 56 56.2	3 41.4	15 3 17.6	—17 0 37.6
3889*	Lalande 27742 .	7	3 April 4	3 3.6	44.2	+20 5 10.5	3 36.6	15 3 47.8	+20 1 33.9
3890	" . . .	7	3 May 9	15 3 4.0	+ 43.7	+20 5 19.5	— 3 42.0	15 3 47.7	+20 1 37.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3891	Piazzi 18 . . .	6.7	3 April 3	15 3 57.7	+ 42.9	+23 47 34.2	— 3 35.1	15 4 40.6	+23 43 59.1
3892*	" . . .		3 May 20	3 58.1	42.4	23 47 44.3	3 43.4	4 40.5	44 0.9
3893	" . . .	6.7	3 May 29	3 58.3	42.3	+23 47 43.4	3 45.1	4 40.6	43 58.3
3894	595 Mayer . .	7.8	3 April 18	3 52.6	56.5	—21 35 8.1	3 41.3	15 4 49.1	—21 38 49.4
3895	4 Serpentis . .	6	4 June 5	4 52.0	45.9	+ 1 10 40.6	3 26.7	15 5 37.9	+ 1 7 13.9
3896	Piazzi 24 . . .	6.7	3 May 13	5 16.2	39.0	32 36 10.9	3 41.3	15 5 55.2	+32 32 29.6
3897	" . . .	6.7	3 May 15	5 16.4	39.0	32 36 13.3	3 41.9	5 55.4	32 31.4
3898	48 Boötis χ	6	3 April 25	5 27.2	40.2	29 58 31.8	3 36.9	15 6 7.4	+29 54 54.9
3899	" . . .		3 May 12	5 27.6	40.0	29 58 31.4	3 40.6	6 7.6	54 50.8
3900	" . . .	6.7	4 June 16	5 30.5	37.3	+29 58 23.0	3 32.0	6 7.8	54 51.0
3901	27 Libræ β		3 April 21	5 24.0	52.5	— 8 34 30.6	3 38.2	15 6 16.5	— 8 38 8.8
3902	" . . .		3 May 4	5 23.5	52.3	8 34 27.2	3 38.3	6 15.8	38 5.5
3903	" . . .		3 May 16	5 23.6	52.2	8 34 23.5	3 38.6	6 15.8	38 2.1
3904	" . . .		3 July 8	5 24.1	52.2	8 34 28.2	3 40.8	6 16.3	38 9.0
3905	" . . .	2	3 July 9	5 23.9	52.2	8 34 29.8	3 40.8	6 16.1	38 10.6
3906	" . . .		3 July 10	5 23.9	52.2	8 34 27.0	3 40.9	6 16.1	38 7.9
3907	" . . .		3 July 26	5 23.5	52.3	— 8 34 25.5	3 41.6	6 15.8	38 7.1
3908	Groombridge 2205	6.7	3 April 27	6 20.0	33.5	+43 51 16.6	3 36.8	15 6 53.5	+43 47 39.8
3909	" . . .	6.7	3 April 28	6 19.9	33.4	43 51 23.4	3 37.2	6 53.3	47 46.2
3910	Lalande 27845,7	7	3 April 19	6 21.7	41.6	26 26 58.6	3 34.8	15 7 3.3	+26 23 23.8
3911	49 Boötis δ		3 April 16	6 47.8	38.5	34 7 42.3	3 33.5	15 7 26.3	+34 4 8.8
3912	" . . .		3 May 12	6 48.4	38.2	34 7 48.6	3 39.5	7 26.6	4 9.1
3913	" . . .		3 May 13	6 48.4	38.2	34 7 45.2	3 39.7	7 26.6	4 5.5
3914	" . . .		3 May 15	6 48.3	38.2	34 7 46.9	3 40.1	7 26.5	4 6.8
3915	" . . .		3 July 8	6 47.8	38.5	34 7 58.2	3 51.1	7 26.3	4 7.1
3916	5 Serpentis . .		4 June 5	8 20.2	45.5	2 35 25.2	3 23.5	15 9 5.7	+ 2 32 1.7
3917	44 (Hev.) Boötis	6	3 April 3	8 42.6	44.0	21 22 11.8	3 30.3	15 9 26.6	+21 18 41.5
3918	" . . .	6	3 May 9	8 43.0	43.5	21 22 19.6	3 35.6	9 26.5	18 44.0
3919*	" . . .		3 May 20	8 42.1	43.1	+21 22 23.6	3 37.8	9 25.2	18 45.8
3920	28 Libræ . . .		3 May 16	8 39.1	54.9	—17 21 37.4	3 34.8	15 9 34.0	—17 25 12.2
3921	Lalande 27942 .	7.8	3 April 19	9 6.9	39.5	+31 38 8.1	3 31.5	15 9 46.4	+31 34 36.6
3922	" . . .	7	3 May 29	9 7.2	39.2	31 38 14.4	3 40.5	9 46.4	34 33.9
3923	" . . .	8	4 June 16	9 9.4	36.5	+31 38 5.6	3 30.0	9 45.9	34 35.6
3924	29 Libræ o¹		3 May 4	8 58.0	54.2	—14 45 21.4	3 35.7	15 9 52.2	—14 48 56.1
3925	Lalande 27947 .	8	3 May 12	9 16.6	38.0	+34 23 34.1	3 37.0	15 9 54.6	+34 19 57.1
3926	" . . .	6.7	3 May 13	9 15.1	38.0	34 23 33.6	3 37.1	9 53.1	19 56.5
3927	" . . .	7	3 May 15	9 15.4	38.0	34 23 33.3	3 37.3	9 53.4	19 56.0
3928	6 Serpentis . .	6	3 April 25	10 2.2	49.5	1 30 45.0	3 33.2	15 10 51.7	+ 1 27 11.8
3929	Lalande 27990 .	6.7	3 May 13	10 47.6	38.4	33 18 23.8	3 35.1	15 11 26.0	+33 14 48.7
3930	Lalande 27992 .	7	3 April 27	10 57.4	31.6	46 24 40.5	3 31.5	15 11 29.0	+46 21 9.0
3931	" . . .	7	3 April 28	10 57.5	31.2	46 24 42.9	3 32.0	11 29.1	21 10.9
3932	1 Coronæ o		3 April 16	11 12.2	40.0	30 24 30.0	3 28.6	15 11 52.2	+30 21 1.4
3933	" . . .		3 April 19	11 12.7	39.9	30 24 29.3	3 29.2	11 52.6	21 0.1
3934	" . . .		3 May 15	11 13.3	39.6	30 24 32.7	3 34.8	11 52.9	20 57.9
3935	" . . .		3 May 20	11 12.7	39.6	+30 24 38.2	3 36.1	11 52.3	21 2.1
3936	30 Libræ o²		3 May 16	10 59.1	54.0	—14 21 2.2	3 32.5	15 11 53.1	—14 24 34.7
3937*	Piazzi 53 . . .	6.7	3 April 3	11 46.6	42.0	+25 44 34.7	3 26.2	15 12 28.6	+25 41 8.5
3938	" . . .	7	4 June 16	11 49.6	40.1	+25 44 39.9	3 30.6	12 29.7	41 9.3
3939	31 Libræ ε		3 May 4	12 29.9	52.7	— 9 31 59.6	3 30.7	15 13 22.6	— 9 35 30.3
3940	" . . .		3 July 8	(12)		9 32 0.8	3 32.9	(13)	35 33.7
3941	" . . .		3 July 9	12 30.4	52.5	9 32 0.8	3 33.1	13 22.9	35 33.9
3942	8 Serpentis . .		4 June 5	12 38.7	46.3	— 0 14 39.6	3 18.6	15 13 25.0	— 0 17 58.2
3943	Lalande 28061 .	7.8	3 May 9	13 2.8	43.6	+19 41 45.7	3 30.8	15 13 46.4	+19 38 14.9
3944	Bessel, W.350,1 .	7	3 May 12	13 16.5	32.1	45 13 33.3	3 32.9	15 13 48.6	+45 10 0.4
3945*	Lalande 28074 .	8	3 April 27	13 36.8	31.4	46 26 54.2	3 28.4	15 14 8.2	+46 23 25.8
3946	2 Coronæ η		3 April 16	14 17.2	39.6	31 4 36.1	3 24.9	15 14 56.8	+31 1 11.2
3947	" . . .		3 April 19	14 17.1	39.5	31 4 36.7	3 25.6	14 56.6	1 11.1
3948	" . . .	5.6	3 May 13	14 17.1	39.3	31 4 38.6	3 31.0	14 56.4	1 7.6
3949	" . . .		3 May 15	14 17.4	39.3	31 4 36.4	3 31.3	14 56.7	1 5.1
3950	Groombridge 2221	6	3 April 28	15 14 37.8	+ 35.0	+40 21 35.5	— 3 27.4	15 15 12.8	+40 18 8.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
3951	Groombridge 2221	6	3 May 29	15 14 38.9	+ 34.8	+40 21 42.1	— 3 35.5	15 15 13.7	+40 18 6.6
†3952*	Bessel, W. 329 .	8	3 April 25	14 28.9	46.3	11 46 53.1	3 26.9	15 15 15.2	+11 43 26.2
3953	9 Serpentis . .	7.6	3 April 25	15 46.4	44.9	16 11 52.4	3 25.3	15 16 31.3	+16 8 27.1
3954	Piazzi 72 . . .	6	3 May 9	16 10.2	43.4	20 14 59.3	3 27.1	15 16 53.6	+20 11 32.2
3955	" . . .		3 May 29	16 10.6	43.2	20 14 59.5	3 30.8	16 53.8	11 28.7
3956	51 Boötis μ		3 April 28	16 20.7	36.0	38 8 30.3	3 25.1	15 16 56.7	+38 5 5.2
3957	" . . .		3 May 13	16 20.8	35.9	38 8 35.7	3 29.0	16 56.7	5 6.7
3958	" . . .		3 May 15	16 20.8	35.9	+38 8 34.3	3 29.4	16 56.7	5 4.9
3959	32 Libræ ζ¹		3 May 4	16 5.5	54.7	—15 56 57.5	3 26.8	15 17 0.2	—16 0 24.3
3960	Lalande 28164 .	7	3 May 12	16 50.3	31.3	+46 2 31.8	3 28.7	15 17 21.6	+45 59 3.1
3961	33 Libræ ζ²	7	3 April 18	17 22.4	55.2	—16 40 53.6	3 26.2	15 18 17.6	—16 44 19.8
3962	" . . .	6.7	3 May 16	17 22.7	54.8	—16 40 56.6	3 25.2	18 17.5	44 21.8
3963	Piazzi 81 . . .	4.5	3 April 3	17 49.6	37.9	+35 5 40.7	3 18.3	15 18 27.5	+35 2 22.4
3964	10 Serpentis .		4 June 5	17 46.5	45.5	+ 2 36 2.6	3 13.6	15 18 32.0	+ 2 32 49.0
3965	34 Libræ ζ³	6.7	3 May 16	18 30.4	54.6	—15 51 16.5	3 24.1	15 19 25.0	—15 54 40.0
3966	Johnson 3387 .	8	3 April 27	19 0.3	32.1	+44 46 4.7	3 21.9	15 19 32.4	+44 42 42.8
3967	" . . .	7	3 April 28	19 0.4	32.1	44 46 2.0	3 22.2	19 32.5	42 39.8
3968	" . . .	9	3 May 13	19 0.0	32.0	44 46 15.3	3 26.5	19 32.0	42 48.8
3969*	" . .	8.9	3 May 15	19 0.7	32.0	44 46 11.7	3 26.8	19 32.7	42 44.9
3970	3 Coronæ Bor. β		3 April 16	18 55.7	39.9	29 51 30.0	3 19.6	15 19 35.6	+29 48 10.4
3971	" . . .		3 April 19	18 55.9	39.9	29 51 29.9	3 20.2	19 35.8	48 9.7
3972*	" . . .		3 July 9	18 56.2	39.7	29 51 44.7	3 36.7	19 35.9	48 8.0
3973	" . . .		3 July 10	18 57.0	39.7	29 51 44.7	3 36.9	19 36.7	48 7.8
3974	" . . .		3 July 29	18 55.5	39.3	29 51 45.0	3 38.8	19 34.8	48 6.2
3975	Piazzi 89 . . .	7	3 April 25	19 15.9	44.5	17 8 37.8	3 21.2	15 20 0.4	+17 5 16.6
3976*	" . . .	6.7	3 May 9	19 15.7	44.4	17 8 46.0	3 24.2	20 0.1	5 21.8
3977	Groombridge 2237	6.7	3 April 3	20 29.4	35.6	39 28 38.6	3 14.9	15 21 5.0	+39 25 23.7
3978	" . . .	7.8	3 April 28	20 30.3	35.1	39 28 39.1	3 20.3	21 5.4	25 18.8
3979	" . . .	8	3 May 12	20 31.0	35.0	+39 28 43.9	3 23.9	21 6.0	25 20.0
3980*	606 Mayer . .		3 April 18	20 13.0	56.0	—18 55 12.4	3 23.4	15 21 9.0	—18 58 35.8
3981	35 Libræ ζ⁴		3 May 4	20 43.9	54.8	16 6 24.5	3 21.7	15 21 38.7	—16 9 46.2
3982	" . . .		3 May 16	20 44.0	54.7	—16 6 24.8	3 21.5	21 38.7	9 46.3
3983	Piazzi 100 . .	6	3 May 29	21 39.5	38.5	+32 2 10.9	3 26.0	15 22 18.0	+31 58 44.9
3984	Arg. Z. Oelt. 15405	7	3 May 13	21 49.7	29.7	47 57 7.1	3 23.3	15 22 19.4	+47 53 43.8
3985	" . . .	7	3 May 15	21 49.6	29.7	+47 57 6.8	3 23.8	22 19.3	53 43.0
3986	11 Serpentis . .		4 June 5	21 53.6	47.4	— 0 26 42.7	3 8.9	15 22 41.0	— 0 29 51.6
3987	12 Serpentis τ¹	5.6	3 April 3	22 12.4	45.0	+16 47 49.3	3 15.2	15 22 57.4	+16 44 34.1
3988	" . . .		3 April 19	22 12.3	44.7	16 47 53.2	3 17.0	22 57.0	44 36.2
3989	" . . .	7	3 April 25	22 12.4	44.6	16 47 51.8	3 17.8	22 57.0	44 34.0
3990*	" . . .	6	3 May 9	22 12.3	44.4	+16 47 59.3	3 20.0	22 56.7	44 39.3
3991	Lalande 28345 .	7	3 May 16	22 46.8	54.8	—16 23 59.5	3 13.4	15 23 41.6	—16 27 12.9
3992	Lalande 28347 .	6	3 April 27	23 10.2	36.1	+37 21 37.8	3 16.7	15 23 46.3	+37 18 21.1
3993*	" . . .	6	3 April 28	23 10.4	36.1	37 21 36.3	3 17.1	23 46.5	18 19.2
3994	Piazzi 109 . .	6	3 April 3	23 6.5	45.0	16 45 2.2	3 14.0	15 23 51.5	+16 41 48.2
3995	" . . .	6.7	3 April 25	23 7.6	44.6	+16 45 7.8	3 16.7	23 52.2	41 51.1
3996*	38 Libræ γ		3 April 16	23 26.8	54.5	—14 3 20.9	3 19.0	15 24 21.3	—14 6 39.9
3997	" . . .		3 April 18	23 27.5	54.5	14 3 16.7	3 19.0	24 22.0	6 35.7
3998	" . . .	6	3 May 4	23 27.2	54.2	—14 3 21.8	3 18.5	24 21.4	6 40.3
3999	53 Boötis ν²		3 May 13	24 3.8	33.6	+41 38 24.0	3 20.1	15 24 37.4	+41 35 3.9
4000	" . . .	6	3 May 15	24 3.8	33.6	41 38 20.7	3 20.5	24 37.4	35 0.2
4001	4 Coronæ θ		4 June 5	24 15.4	35.7	+32 5 44.5	3 11.2	15 24 51.1	+32 2 33.3
4002	Lalande 28389 .	7.8	3 May 16	24 24.3	54.8	—16 16 50.5	3 12.0	15 25 19.1	—16 20 2.5
4003	5 Coronæ α		3 April 27	25 32.9	40.5	+27 26 59.7	3 13.8	15 26 13.4	+27 23 45.9
4004	" . . .		3 May 12	25 32.9	40.4	27 27 5.0	3 17.0	26 13.3	23 48.0
4005	" . . .		3 May 29	25 32.8	40.3	27 27 6.7	3 20.7	26 13.1	23 46.0
4006	" . . .	2.3	3 July 8	25 32.8	40.4	27 27 13.0	3 28.4	26 13.2	23 44.6
4007	" . . .		3 July 9	25 33.1	40.4	27 27 13.2	3 28.5	26 13.5	23 44.7
4008	" . . .		3 July 10	25 32.8	40.4	27 27 13.7	3 28.6	26 13.2	23 45.1
4009	" . . .	2.3	3 July 14	25 32.8	40.5	27 27 14.3	3 29.1	26 13.3	23 45.2
4010	" . . .		3 July 19	15 25 32.7	+ 40.4	+27 27 14.1	— 3 29.8	15 26 13.1	+27 23 44.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4011	5 Coronæ . .		3 July 29	15 25 32.8	+ 40.7	+27 27 13.0	− 3 30.7	15 26 13.5	+27 23 42.3
4012	15 Serpentis . .		3 April 3	25 44.4	44.4	18 22 59.7	3 10.7	15 26 28.8	+18 19 49.0
4013	18 Serpentis τ^2		3 April 28	26 32.1	44.5	+16 50 38.9	3 13.2	15 27 16.6	+16 47 25.7
4014	614 Mayer . .		3 April 19	26 26.7	54.4	−13 47 25.3	3 15.4	15 27 21.1	−13 50 40.7
4015	41 Libræ . . .		3 May 4	26 29.1	55.8	18 34 34.6	3 15.1	15 27 24.9	−18 37 49.7
4016	Lalande 28466 .	7.6	3 May 16	26 39.3	56.9	−22 25 45.9	3 15.0	15 27 36.2	−22 29 0.9
4017	6 Coronæ Bor. μ	6	3 May 13	27 20.5	34.5	+39 44 9.0	3 16.0	15 27 55.0	+39 40 53.0
4018	" . . .		3 May 15	27 20.3	34.5	39 44 7.5	3 16.4	27 54.8	40 51.1
4019	Lalande 28505,6 .	7.8	3 April 25	28 3.2	39.1	30 42 58.6	3 10.5	15 28 42.3	+30 39 48.1
4020	Lalande 28572,3 .	6.7	3 April 28	29 57.4	45.8	+12 45 48.0	3 0.7	15 30 43.2	+12 42 47.3
4021	43 Libræ κ		3 May 4	29 30.6	56.0	−18 57 51.1	3 12.0	15 30 26.6	−19 1 3.1
4022	Piazzi 146 . .	7	3 May 12	29 46.6	44.2	+17 1 21.2	3 11.4	15 30 30.8	+16 58 9.8
4023*	" . . .	7	3 May 29	29 46.8	44.1	17 1 23.6	3 14.5	30 30.9	58 9.1
4024	Piazzi 148 . .	6.7	3 April 25	30 28.7	36.8	35 23 18.2	3 7.4	15 31 5.5	+35 20 10.8
4025	" . . .	6	3 May 13	30 28.5	36.6	35 23 16.3	3 11.7	31 5.1	20 4.6
4026	" . . .	7	3 May 15	30 28.9	36.6	35 23 14.6	3 12.3	31 5.5	20 2.3
4027	19 Serpentis τ^3		3 May 12	31 4.4	44.3	16 43 53.4	3 9.9	15 31 48.7	+16 40 43.5
4028	" . . .		3 May 29	31 3.6	44.1	16 43 58.0	3 12.9	31 47.7	40 45.1
4029	7 Coronæ Bor. ζ	4	3 April 3	31 14.3	36.2	37 20 33.6	3 2.0	15 31 50.5	+37 17 31.6
4030	20 Serpentis χ		3 April 28	31 37.5	45.6	13 33 5.0	3 7.1	15 32 23.1	+13 29 57.9
4031	Lalande 28612 .	8	3 April 27	31 42.9	47.2	8 31 13.0	3 7.1	15 32 30.1	+ 8 28 5.9
4032	" . . .	8.9	3 May 9	31 43.1	47.1	8 31 16.7	3 8.5	32 30.2	28 8.2
4033*	21 Serpentis . .		4 June 5	31 58.3	39.8	+20 22 21.1	3 0.8	15 32 38.1	+20 19 20.3
4034	44 Libræ η		3 July 8	31 56.2	54.4	−14 58 17.7	3 17.8	15 32 50.6	−15 1 35.5
4035*	Lacaille 6509 . .	6	3 May 16	32 28.8	59.7	29 20 57.0	3 8.4	15 33 28.5	−29 24 5.4
4036	Lalande 28668 .	7.8	3 May 4	32 58.5	55.7	18 24 45.2	3 8.0	15 33 54.2	−18 27 53.2
4037	Lacaille 6516 . .	6	3 May 31	33 5.5	58.8	−27 22 12.0	3 6.7	15 34 4.3	−27 25 18.7
4038	8 Coronæ γ		3 April 25	33 40.1	40.5	+26 59 20.7	3 3.5	15 34 20.6	+26 56 17.2
4039	" . . .		3 May 13	33 40.7	40.4	26 59 18.5	3 7.4	34 21.1	56 11.1
4040	" . . .		3 May 15	33 40.8	40.3	26 59 18.1	3 7.7	34 21.1	56 10.4
4041	" . . .		4 June 5	33 42.6	37.4	26 59 13.9	2 59.8	34 20.0	56 14.1
4042	24 Serpentis α		3 April 27	33 37.3	47.7	7 6 54.0	3 4.8	15 34 25.0	+ 7 3 49.2
4043	" . . .		3 April 28	33 37.6	47.7	7 6 57.3	3 5.0	34 25.3	3 52.3
4044	" . . .		3 May 29	33 38.5	47.3	7 6 58.3	3 8.8	34 25.8	3 49.5
4045	" . . .		3 July 8	33 38.2	47.3	7 7 3.0	3 13.6	34 25.5	3 49.4
4046	" . . .		3 July 9	33 38.4	47.3	7 7 0.7	3 13.7	34 25.7	3 47.0
4047	" . . .		3 July 10	33 37.9	47.4	7 7 2.9	3 13.8	34 25.3	3 49.1
4048	" . . .		3 July 19	33 38.1	47.4	7 7 2.1	3 14.6	34 25.5	3 47.5
4049	" . . .		3. July 26	33 38.1	47.5	7 7 5.0	3 15.3	34 25.6	3 49.7
4050	Bessel, W.722 .	7.8	3 May 9	34 17.6	45.9	11 57 35.4	3 5.5	15 35 3.5	+11 54 29.9
4051	26 Serpentis . .	6	3 April 3	34 53.2	44.4	17 57 3.9	3 2.7	15 35 37.6	+17 54 1.2
4052	9 Coronæ Bor. π		3 May 12	35 29.8	37.5	+33 12 23.3	3 5.0	15 36 7.3	+33 9 18.3
4053*	Lacaille 6531 . .	6	3 April 19	35 9.4	59.8	−28 6 13.9	3 7.7	15 36 9.2	−28 9 21.6
4054	Lalande 28746 .	7	3 May 4	35 56.2	52.7	− 8 47 53.3	3 3.7	15 36 48.9	− 8 50 57.0
4055	28 Serpentis β		3 April 25	36 12.7	44.6	+16 6 29.4	3 1.0	15 36 57.3	+16 3 28.4
4056	" . . .		3 April 27	36 12.9	44.6	16 6 28.1	3 1.2	36 57.5	3 26.9
4057	" . . .		3 April 28	36 13.2	44.6	16 6 27.3	3 1.4	36 57.8	3 25.9
4058	" . . .	4.5	3 May 9	36 13.2	44.4	16 6 33.0	3 3.1	36 57.6	3 29.9
4059*	" . . .		3 May 13	36 13.9	44.4	16 6 26.0	3 4.4	36 58.3	3 21.6
4060	" . . .		3 May 15	36 13.4	44.3	16 6 26.7	3 4.1	36 57.7	3 22.6
4061*	" . . .		3 May 29	36 14.1	44.3	16 6 31.3	3 6.7	36 58.4	3 24.6
4062*	" . . .		3 July 8	(36)		16 6 39.3	3 8.7	(36)	3 30.6
4063	" . . .		3 July 9	36 13.9	44.3	16 6 37.0	3 13.0	36 58.2	3 24.0
4064	" . . .		3 July 26	36 13.4	44.5	16 6 40.4	3 14.9	36 57.9	3 25.5
4065	29 Serpentis . .		3 May 13	36 28.0	44.4	16 12 23.8	3 3.6	15 37 12.4	+16 9 20.2
4066	" . . .		3 May 15	36 28.1	44.3	+16 12 32.6	3 3.9	37 12.4	9 28.7
4067	5 Lupi λ	3	3 May 16	37 16.1	61.4	−32 57 12.6	3 3.0	15 38 17.5	−33 0 15.6
4068	Piazzi 176 . .	6	3 May 12	38 10.5	45.0	+14 28 9.7	3 1.2	15 38 55.5	+14 25 8.5
4069	1 Scorpii β	4	3 April 19	38 0.0	58.7	−25 4 49.0	3 3.9	15 38 58.7	−25 7 52.9
4070	32 Serpentis μ		3 July 9	15 38 21.5	+ 50.4	− 2 45 24.8	− 3 5.5	15 39 11.9	− 2 48 30.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ' "	' "	h m s	° ' "
4071	32 Serpentis μ		3 July 19	15 38 21.9	+ 50.5	− 2 45 25.4	− 3 6.2	15 39 12.4	− 2 48 31.6
4072	35 Serpentis κ	5.6	3 April 25	39 0.3	43.6	+18 49 7.0	2 57.4	15 39 43.9	+18 46 9.6
4073	"		3 April 28	39 0.9	43.6	18 49 6.9	2 57.9	39 44.5	46 9.0
4074	"	5	3 May 9	39 1.0	43.4	18 49 8.8	2 59.9	39 44.4	46 8.9
4075	"		3 May 15	39 1.2	43.4	18 49 5.7	3 0.9	39 44.6	46 4.8
4076	"		3 May 29	39 1.1	43.2	18 49 10.7	3 3.4	39 44.3	46 7.3
4077	34 Serpentis ω		4 June 5	39 26.1	45.3	2 51 51.9	2 50.2	15 40 11.4	+ 2 49 1.7
4078	Lalande 28849 .	8.9	3 April 3	39 52.0	45.5	14 43 50.5	2 54.0	15 40 37.5	+14 40 56.5
4079	37 Serpentis ε		3 July 9	40 3.6	47.9	5 8 26.3	3 5.6	15 40 51.5	+ 5 5 20.7
4080	"		3 July 10	40 3.5	47.9	5 8 26.7	3 5.7	40 51.4	5 21.0
4081	"		3 July 19	40 3.3	48.0	5 8 26.1	3 6.5	40 51.3	5 19.6
4082	"		3 July 26	40 3.2	48.0	5 8 28.5	3 7.0	40 51.2	5 21.5
4083	10 Coronæ δ		3 May 12	40 32.5	40.2	26 44 20.2	2 58.6	15 41 12.7	+26 41 21.6
4084	Serpentis R	7	3 April 27	40 44.1	44.6	15 47 57.8	2 55.6	15 41 28.7	+15 45 2.2
4085	"	6.7	3 April 28	40 44.3	44.9	+15 47 57.1	2 55.8	41 29.2	45 1.3
4086*	2 Scorpii A^1		3 April 19	40 38.8	58.6	−24 40 3.2	3 0.7	15 41 37.4	−24 43 3.9
4087	"	4.5	3 May 16	40 40.2	58.1	24 40 2.6	2 58.8	41 38.3	43 1.4
4088	45 Libræ λ		3 May 4	40 48.2	56.4	19 30 22.7	2 58.6	15 41 44.6	−19 33 21.3
4089*	46 Libræ θ		3 July 8	41 32.7	54.8	−16 4 55.0	2 58.0	15 42 27.5	−16 7 53.0
4090	38 Serpentis ρ		3 May 13	41 46.9	42.2	+21 38 11.9	2 57.2	15 42 29.1	+21 35 14.7
4091	"		3 May 15	41 46.8	42.2	21 38 13.8	2 57.5	42 29.0	35 16.3
4092	"		3 May 29	41 47.0	42.1	21 38 15.0	3 0.3	42 29.1	35 14.7
4093	Lalande 28910 .	8	3 April 3	42 .4.5	45.0	15 53 59.9	2 50.8	15 42 49.5	+15 51 9.1
4094	"	7.8	3 May 9	42 4.3	44.4	+15 54 6.0	2 55.9	42 48.7	51 10.1
4095	4 Scorpii . . .	6	3 May 16	42 27.8	58.5	−25 36 49.5	2 56.5	15 43 26.3	−25 39 46.0
4096	11 Coronæ κ		3 May 12	43 7.0	35.7	+36 20 9.2	2 55.8	15 43 42.7	+36 17 13.4
4097	"		3 July 5	43 6.3	35.7	36 20 22.4	3 8.5	43 42.0	17 13.9
4098	"		4 June 5	43 8.9	33.1	36 20 8.0	2 50.0	43 42.0	17 18.0
4099	39 Serpentis . .	6.7	3 April 25	43 8.5	45.3	13 53 0.2	2 52.5	15 43 53.8	+13 50 7.7
4100	Piazzi 203 . .	7	3 April 27	43 10.3	43.8	18 3 21.3	2 52.4	15 43 54.1	+18 0 28.9
4101	"	6.7	3 April 28	43 10.0	43.8	18 3 26.8	2 52.7	43 53.8	0 34.1
4102	"	7	3 May 13	43 10.0	43.6	+18 3 25.7	2 55.3	43 53.6	0 30.4
4103	5 Scorpii ρ		3 July 8	(43)		−28 34 12.4	2 52.4	15(44)	−28 37 4.8
4104	"		3 July 9	43 34.6	59.5	−28 34 17.7	2 52.3	44 34.1	37 10.0
4105	40 Serpentis . .		3 May 29	44 14.2	46.5	+ 9 13 41.6	2 55.6	15 45 0.7	+ 9 10 46.0
4106	Lalande 28980 .	6.7	3 April 19	44 24.2	54.9	−14 11 1.7	2 54.3	15 45 19.1	−14 13 56.0
4107	"	6	3 May 4	44 24.6	54.6	−14 11 0.2	2 53.9	45 19.2	13 54.1
4108	Piazzi 215 . .	6	3 April 3	45 58.6	43.8	+19 15 41.4	2 45.6	15 46 42.4	+19 12 55.8
4109	"	6	3 April 27	45 59.8	43.3	19 15 49.3	2 48.8	46 43.1	13 0.5
4110	"	6	3 April 28	45 59.5	43.3	19 15 44.8	2 49.1	46 42.8	12 55.7
4111	"	7	3 May 9	45 59.3	43.1	+19 15 47.0	2 51.1	46 42.4	12 55.9
4112	6 Scorpii π		3 May 31	45 48.8	58.4	−25 28 32.4	2 51.8	15 46 47.2	−25 31 24.2
4113	"		3 July 8	45 48.1	58.3	25 28 41.8	2 50.6	46 46.4	31 32.4
4114	"		3 July 9	45 48.3	58.3	25 28 45.8	2 50.5	46 46.6	31 36.3
4115	"		3 July 26	45 47.9	58.4	−25 28 40.9	2 50.6	46 46.3	31 31.5
4116	41 Serpentis γ		3 April 25	46 28.4	44.4	+16 22 36.9	2 48.2	15 47 12.8	+16 19 48.7
4117	"		3 May 13	46 29.3	44.1	16 22 37.4	2 51.2	47 13.4	19 46.2
4118	"		3 May 15	46 28.9	44.1	16 22 33.1	2 51.5	47 13.0	19 41.6
4119	"		3 July 5	46 29.4	44.0	16 22 43.2	2 59.3	47 13.4	19 43.9
4120	"		3 July 14	46 29.2	44.0	16 22 48.4	3 1.2	47 13.2	19 47.2
4121	2 Herculis . .		4 June 5	47 28.5	28.8	43 46 24.6	2 45.4	15 47 57.3	+43 43 39.2
4122	12 Coronæ Bor. λ		3 July 5	47 56.8	34.3	+38 34 57.1	3 2.9	15 48 31.1	+38 31 54.2
4123	7 Scorpii δ		3 April 19	47 33.9	57.7	−21 59 33.5	2 51.7	15 48 31.6	−22 2 25.2
4124*	" .		3 July 19	47 34.5	57.1	−21 59.26.4	3 1.7	48 31.6	2 28.1
4125	4 Herculis . .		3 May 29	48 15.1	31.3	+43 12 9.3	2 54.1	15 48 46.4	+43 9 15.2
4126	49 Libræ . .		3 May 4	48 13.1	55.1	−15 52 58.8	2 49.4	15 49 8.2	−15 55 48.2
4127	13 Coronæ Bor. ε		3 April 3	48 38.1	40.4	+27 30 38.0	2 41.1	15 49 18.5	+27 27 56.9
4128	"		3 April 27	48 39.0	39.9	27 30 42.8	2 43.5	49 18.9	27 59.3
4129	"		3 April 28	48 38.7	39.9	27 30 42.7	2 45.4	49 18.6	27 57.3
4130	"		3 May 9	15 48 38.9	+ 39.7	+27 30 45.6	− 2 47.7	15 49 18.6	+27 27 57.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4131	13 Coronæ Bor. ε	5	3 May 13	15 48 38.6	+ 39.7	+27 30 43.8	− 2 49.9	15 49 18.3	+27 27 53.9
4132	" . . .		3 May 15	48 38.5	39.7	27 30 41.0	2 49.9	49 18.2	27 51.1
4133	Piazzi 239 . .	6.7	3 April 25	50 59.6	35.1	37 15 47.7	2 41.3	15 51 34.7	+37 13 6.4
4134	" . . .	6.7	3 May 13	50 59.6	34.9	37 15 54.9	2 45.8	51 34.5	13 9.1
4135	" . . .	6	3 May 15	51 0.1	34.8	37 15 52.3	2 46.3	51 34.9	13 6.0
4136	Lalande 29160 .	7.8	3 May 12	50 50.9	45.0	13 53 28.3	2 45.3	15 51 35.9	+13 50 43.0
4137	" . . .	7	3 July 5	50 51.1	44.8	+13 53 40.8	2 54.0	51 35.9	50 46.8
4138	Lacaille 6663 .	6	3 April 19	50 56.9	58.6	−24 6 52.9	2 48.0	15 51 55.5	−24 9 40.9
4139	5 Herculis τ		3 May 29	51 32.7	43.2	+18 25 42.0	2 47.6	15 52 15.9	+18 22 54.4
4140	" . . .		3 July 10	51 32.5	43.2	18 25 38.1	2 55.0	52 15.7	22 43.1
4141	Lalande 29196 .	7.8	3 May 12	51 49.6	44.8	14 5 3.7	2 43.9	15 52 34.4	+14 2 19.8
4142	" . . .	7	3 July 8	51 50.2	44.8	14 (5)		52 35.0	(2)
4143*	Bessel, W.1390,1	7	3 April 27	52 12.3	37.6	32 11 7.9	2 40.2	15 52 49.9	+32 8 27.7
4144	" . . .		3 April 28	52 11.9	37.6	+32 11 13.8	2 40.7	52 49.5	8 33.1
4145	51 Libræ ξ		3 May 4	52 29.6	53.5	−10 45 54.7	2 43.8	15 53 23.1	−10 48 38.5
4146*	15 Coronæ Bor. ρ		3 April 27	52 48.1	36.8	+33 57 48.6	2 43.4	15 53 24.9	+33 55 5.2
4147	14 Coronæ Bor. ι		3 May 9	52 47.9	38.3	30 27 52.9	2 42.3	15 53 26.2	+30 25 10.6
4148	44 Serpentis π		4 June 5	53 2.0	38.3	23 24 40.9	2 36.7	15 53 40.3	+23 22 4.2
4149	Johnson 3482 .	6.7	3 May 13	53 16.6	33.3	39 47 25.1	2 43.1	15 53 49.9	+39 44 42.0
4150	" . . .	9	3 May 15	53 16.1	33.3	+39 47 26.6	2 43.0	53 49.4	44 43.6
4151	β Scorpii . . .		3 April 19	52 52.2	57.8	−19 11 57.7	2 44.8	15 53 50.0	−19 14 42.5
4152	" . . .		3 May 31	52 53.6	56.2	19 11 57.2	2 43.6	53 49.8	14 40.8
4153*	" . . .	2	3 July 9	52 53.9	56.1	19 12 4.9	2 43.6	53 50.0	14 48.5
4154	" . . .		3 July 14	52 53.6	56.1	19 12 3.3	2 43.6	53 49.7	14 46.9
4155	" . . .		3 July 19	52 53.5	56.1	19 12 0.1	2 43.8	53 49.6	14 43.9
4156*	" . . .		3 July 26	52 53.7	56.2	−19 11 59.2	2 43.5	53 49.9	14 42.7
4157	Piazzi 258 . .	6.7	3 April 3	54 7.0	44.0	+18 24 14.6	2 35.5	15 54 51.0	+18 21 39.1
4158	" . . .	7.8	3 April 25	54 7.3	43.5	18 24 24.9	2 38.3	54 50.8	21 46.6
4159	" . . .	6	3 July 5	54 8.1	43.1	18 24 30.8	2 50.9	54 51.2	21 39.9
4160	" . . .	6	3 July 8	54 8.3	43.1	18 24 32.6	2 51.3	54 51.4	21 41.3
4161	Groombridge 2299	8	3 May 13	54 31.3	32.8	40 37 42.5	2 41.4	15 55 4.1	+40 35 1.1
4162	" . . .	9	3 May 15	54 31.3	32.8	+40 37 39.5	2 41.9	55 4.1	34 57.6
4163	10 Scorpii ω²		3 July 9	(54)		−20 16 19.3	2 41.1	15(55)	−20 19 0.4
4164	Piazzi 266 . .	7	3 April 27	55 23.4	34.9	+37 14 3.7	2 35.9	15 55 58.3	+37 11 27.8
4165	" . . .	6	3 April 28	55 23.6	34.9	37 14 1.1	2 36.2	55 58.5	11 24.9
4166	6 Herculis υ		3 May 12	56 7.0	28.6	46 38 31.2	2 40.1	15 56 35.6	+46 35 51.1
4167	" . . .	7	3 May 13	56 6.4	28.6	46 38 32.9	2 39.7	56 35.0	35 53.2
4168	" . . .	6.7	3 May 15	56 5.4	28.6	46 38 29.7	2 40.2	56 34.0	35 49.5
4169	" . . .		3 May 29	56 6.1	28.5	+46 38 35.9	2 44.2	56 34.6	35 51.7
4170	Lacaille 6710 .	6	3 April 19	55 50.4	58.4	−23 5 37.8	2 41.8	15 56 48.8	−23 8 19.6
4171	Piazzi 275 . .	7.8	3 May 16	56 48.7	56.3	−18 52 3.9	2 58.9	15 57 45.0	−18 55 2.8
4172	Lalande 29378 .	7	3 April 25	57 21.9	37.2	+32 50 28.1	2 33.1	15 57 59.1	+32 47 55.0
4173	Groombridge 2305	6.7	3 July 5	57 30.8	33.2	39 45 4.3	2 50.8	15 58 4.0	+39 42 13.5
4174	" . . .	6.7	3 July 8	57 31.1	33.1	39 45 6.3	2 51.4	58 4.2	42 14.9
4175	45 Serpentis . .		3 July 10	57 18.7	45.9	10 28 51.7	2 45.7	15 58 4.6	+10 26 6.0
4176*	" . . .		4 June 5	57 21.8	42.8	10 29 2.6	2 30.0	58 4.6	26 32.6
4177	Lalande 29386 .	7.8	3 April 3	57 23.6	45.6	13 55 18.2	2 32.5	15 58 9.2	+13 52 45.7
4178*	46 Serpentis . .		4 June 5	57 51.1	42.7	10 39 55.7	2 29.5	15 58 33.8	+10 37 26.2
4179*	Lalande 29410 .	6.7	3 April 27	58 0.4	41.8	22 24 46.0	2 33.2	15 58 42.2	+22 22 12.8
4180	" . . .	6	3 April 28	58 0.7	41.8	22 24 44.7	2 33.3	58 42.5	22 11.4
4181	Lalande 29424 .	5	3 May 4	58 11.5	48.5	4 2 14.8	2 35.9	15 59 0.0	+ 3 59 38.9
4182*	7 Herculis κ	6.7	3 May 15	58 20.0	43.5	17 37 53.9	2 36.9	15 59 3.5	+17 35 17.0
4183	" . . .		3 May 29	58 19.9	43.3	17 37 59.9	2 38.9	59 3.2	35 21.0
4184	8 Herculis q	7	3 May 15	59 2.6	43.4	+17 47 18.0	2 35.2	15 59 46.0	+17 44 42.8
4185	12 Scorpii c¹		3 July 9	58 56.3	59.5	−27 50 30.4	2 34.0	15 59 55.8	−27 53 4.4
4186	13 Scorpii c²		3 May 31	59 1.8	59.4	27 20 57.8	2 35.8	16 0 1.2	−27 23 33.6
4187	" . .		3 July 9	59 0.8	59.3	27 21 10.2	2 34.1	0 0.1	23 44.3
4188	14 Scorpii ν		3 May 16	59 27.3	56.3	18 53 4.2	2 35.7	16 0 23.6	−18 55 39.9
4189	" . . .	4	3 July 23	59 27.4	56.1	18 53 8.1	2 35.7	0 23.5	55 43.8
4190	" . . .		3 July 26	15 59 27.3	+ 56.1	−18 53 5.6	− 2 35.9	16 0 23.4	−18 55 41.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4191	Lalande 29489 .	7.8	3 April 25	16 0 36.7	+ 32.4	+41 12 9.0	— 2 28.5	16 1 9.1	+41 9 40.5
4192	Lacaille 6745 .	6	3 April 19	0 34.2	62.4	—32 26 36.5	2 37.9	16 1 36.6	—32 29 14.4
4193	16 Coronæ τ		3 July 19	1 4.8	34.7	+37 3 8.0	2 48.2	16 1 39.5	+37 0 19.8
4194	Lalande 29506 .	7	3 July 5	1 15.8	29.0	45 57 43.9	2 46.8	16 1 44.8	+45 54 57.1
4195	" . . .	7.8	3 July 8	1 15.9	29.0	45 57 43.6	2 47.4	1 44.9	54 56.2
4196*	48 Serpentis . .		3 April 27	1 41.9	43.8	17 14 3.2	2 28.5	16 2 25.7	+17 11 34.7
4197	" . . .	6	3 April 28	1 42.2	43.8	17 14 4.4	2 32.6	2 26.0	11 31.8
4198	" . . .		3 May 12	1 42.9	43.6	17 14 0.9	2 31.4	2 26.5	11 29.5
4199	" . . .	6	3 May 13	1 42.5	43.6	17 14 2.3	2 31.5	2 26.1	11 30.8
4200	" . . .	7	3 May 15	1 42.3	43.6	17 14 3.2	2 31.8	2 25.9	11 31.4
4201	" . . .		3 May 29	1 42.4	43.4	17 14 7.9	2 34.2	2 25.8	11 33.7
4202	Arg. Z., Oel. 15942	8	3 July 5	2 11.4	28.9	45 55 44.8	2 45.6	16 2 40.3	+45 52 59.2
4203*	" . . .	9.10	3 July 8	2 11.2	29.0	+45 55 46.5	2 46.8	2 40.2	52 59.7
4204*	640 Mayer . .		3 July 9	1 49.1	58.4	—24 54 52.4	2 31.2	16 2 47.5	—24 57 23.6
4205	9 Herculis . .		3 July 23	2 34.9	47.2	+ 5 35 11.0	2 39.0	16 3 22.1	+ 5 32 32.0
4206	Lalande 29566 .	7	4 June 5	2 55.2	41.7	+13 21 34.7	2 23.6	16 3 36.9	+13 19 11.1
4207	1 Ophiuchi δ		3 May 4	3 2.0	51.0	— 3 7 36.3	2 29.7	16 3 53.0	— 3 10 6.0
4208	" . . .		3 May 16	3 1.7	50.8	3 7 27.1	2 30.6	3 52.5	9 57.7
4209	" . . .		3 July 10	3 2.5	50.5	3 7 29.0	2 35.1	3 53.0	10 4.1
4210	" . . .		3 July 26	3 2.4	50.6	3 7 26.4	2 35.3	3 53.0	10 1.7
4211	" . . .		4 Sept. 17	3 5.0	47.9	— 3 7 39.2	2 28.0	3 52.9	10 7.2
4212	49 Serpentis . .		4 June 5	3 17.2	41.5	+14 6 44.0	2 23.1	16 3 58.7	+14 4 20.9
4213	Piazzi 25 . . .	6	3 April 25	3 54.6	34.8	36 59 22.5	2 24.1	16 4 29.4	+36 56 58.4
4214*	" . . .	6	3 July 19	3 55.1	34.4	36 59 44.0	2 45.5	4 29.5	56 58.5
4215	Bessel, W.203 .	7	3 April 3	3 49.5	40.2	27 13 59.6	2 21.4	16 4 29.7	+27 11 38.2
4216	" . . .	7	3 April 28	3 50.3	39.7	27 14 1.3	2 25.5	4 30.0	11 35.8
4217	" . . .	6.7	3 May 13	3 49.9	39.4	27 14 1.4	2 28.8	4 29.3	11 32.6
4218	" . . .	7	3 May 15	3 50.3	39.4	27 14 1.1	2 29.3	4 29.7	11 31.8
4219	12 Herculis . .		3 May 29	4 14.6	46.6	8 24 54.6	2 30.6	16 5 1.2	+ 8 22 24.0
4220	Groombridge 2318	6.7	3 July 5	4 39.6	30.5	42 56 22.9	2 37.2	16 5 10.1	+42 53 45.7
4221	" . . .	6	3 July 8	4 39.7	30.6	+42 56 23.1	2 38.4	5 10.3	53 44.7
4222	Flamsteed, B.2227		3 May 31	4 56.1	59.9	—28 3 35.4	2 28.4	16 5 56.0	—28 6 3.8
4223	Lacaille 6781 .		3 April 19	5 10.8	63.8	—34 56 27.3	2 32.6	16 6 14.6	—34 58 59.9
4224	15 Herculis . .		3 July 10	5 50.0	45.1	+11 58 24.6	2 34.6	16 6 35.1	+11 55 50.0
4225	" . . .	7	4 June 5	5 52.4	42.1	11 58 6.5	2 19.2	6 34.5	55 47.3
4226*	16 Herculis . .	6	3 April 27	5 54.3	43.0	19 21 48.4	2 23.0	16 6 37.3	+19 19 25.4
4227	" . . .		3 April 28	5 54.0	42.9	19 21 49.9	2 23.1	6 36.9	19 26.8
4228	" . . .	6.7	3 July 19	5 55.0	42.6	19 22 0.7	2 38.0	6 37.6	19 22.7
4229	17 Coronæ σ		3 April 25	6 35.2	36.2	34 24 47.2	2 20.8	16 7 11.4	+34 22 26.4
4230	" . . .		3 May 13	6 36.0	35.9	34 24 50.6	2 25.2	7 11.9	22 25.4
4231*	" . . .	7.6	3 May 15	6 35.9	35.8	34 24 49.7	2 25.5	7 11.7	22 24.2
4232*	17 Herculis . .	7	4 June 5	7 6.2	37.9	+23 40 7.4	2 20.2	16 7 44.1	+23 37 47.2
4233	2 Ophiuchi ε		3 July 23	6 54.3	50.9	— 4 9 6.4	2 30.7	16 7 45.2	— 4 11 37.1
4234*	" . . .		3 July 26	6 54.3	51.0	4 9 5.4	2 30.9	7 45.3	11 36.3
4235	" . . .		3 July 29	6 54.2	51.0	4 9 9.0	2 31.1	7 45.2	11 40.1
4236	" . . .		4 Sept. 17	6 57.0	47.3	— 4 9 13.8	2 23.1	7 44.3	11 36.9
4237	Piazzi 43 . . .	7.8	3 April 27	7 21.9	42.9	+19 23 23.0	2 20.9	16 8 4.8	+19 21 2.1
4238	" . . .	7.8	3 April 28	7 22.0	42.9	19 23 22.7	2 21.2	8 4.9	21 1.5
4239*	Lalande 29708,10	8	3 July 5	8 0.4	34.3	37 6 11.1	2 36.5	16 8 34.7	+37 3 34.6
4240	" . . .	7.8	3 July 8	8 0.7	34.3	37 6 10.8	2 37.1	8 35.0	3 33.7
4241	18 Coronæ Bor. υ		3 May 29	8 6.2	38.0	+29 41 43.9	2 27.0	16 8 44.2	+29 39 16.9
4242*	20 Scorpii σ		3 May 16	8 4.5	58.9	—25 3 31.2	2 25.2	16 9 3.4	—25 5 56.4
4243	" . . .		3 May 31	8 4.8	58.7	25 3 25.6	2 24.6	9 3.5	5 50.2
4244	" . . .		3 July 9	8 4.3	58.5	—25 3 37.9	2 23.3	9 2.8	6 1.2
4245	Lalande 29762 .	9.10	3 July 8	8 54.6	34.3	+37 3 30.0	2 35.8	16 9 28.9	+37 0 54.2
4246	Lalande 29752 .	7	3 April 25	9 21.2	37.2	32 19 24.4	2 17.0	16 9 58.4	+32 17 7.4
4247	19 Herculis . .	6	3 May 13	9 26.7	39.7	26 25 53.9	2 21.2	16 10 6.4	+26 23 32.7
4248	" . . .	6	3 May 15	9 27.0	39.6	26 25 52.1	2 21.6	10 6.6	23 30.5
4249	Flamsteed, B.2244	6.7	3 April 27	10 42.3	42.0	21 39 48.3	2 16.2	16 11 24.3	+21 37 32.1
4250	" . . .	6	3 April 28	16 10 42.0	+ 41.9	+21 39 52.1	— 2 16.5	16 11 23.9	+21 37 35.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4251	Flamsteed, B.2244	6	3 July 5	16 10 42.4	+ 41.5	+21 39 56.4	— 2 30.3	16 11 23.9	+21 37 26.1
4252	" . . .	5.6	3 July 8	(10)		21 39 59.3	2 30.6	(11)	37 28.7
4253	50 Serpentis σ		3 July 10	11 8.3	48.9	+ 1 33 1.9	2 25.8	16 11 57.2	+ 1 30 36.1
4254	644 Mayer . .		3 April 19	11 6.6	61.3	—29 10 56.2	2 23.8	16 12 7.9	—29 13 20.0
4255	4 Ophiuchi ψ		3 July 9	11 28.9	56.4	—19 31 6.0	2 20.3	16 12 25.3	—19 33 26.3
4256	Groombridge 2328	6.7	3 May 13	12 32.3	32.3	+40 13 55.8	2 17.1	16 13 4.6	+40 11 38.7
4257	" . . .	6	3 May 15	12 32.1	32.4	40 13 55.0	2 17.7	13 4.5	11 37.3
4258	20 Herculis γ		3 April 25	12 23.1	42.8	19 40 13.9	2 14.0	16 13 5.9	+19 37 59.9
4259	" . . .		3 May 16	12 23.6	42.5	19 40 15.7	2 17.8	13 6.1	37 57.9
4260	" . . .		3 July 8	12 22.9	42.3	19 40 21.7	2 28.0	13 5.2	37 53.7
4261	" . . .		3 July 26	12 23.6	42.4	19 40 24.6	2 30.5	13 6.0	37 54.1
4262	" . . .		4 June 5	12 26.6	39.3	+19 40 6.4	2 12.4	13 5.9	37 54.0
4263	5 Ophiuchi ρ	6	3 May 31	12 38.8	57.9	—22 55 57.1	2 18.6	16 13 36.7	—22 58 15.7
4264	" . . .	3.4	3 July 5	12 38.7	57.7	—22 55 59.1	2 18.1	13 36.4	58 17.2
4265	22 Herculis τ		3 May 29	13 17.2	27.5	+46 50 4.1	2 21.0	16 13 44.7	+46 47 43.1
4266	20 Coronæ Bor. ν^1		3 May 15	14 15.0	35.7	+34 18 56.7	2 14.6	16 14 50.7	+34 16 42.1
4267	7 Ophiuchi χ		3 July 9	14 31.4	55.8	—17 57 9.7	2 16.8	16 15 27.2	—17 59 26.5
4268	" . . .		3 July 23	14 31.4	55.9	—17 57 5.3	2 16.9	15 27.3	59 22.2
4269	51 Serpentis ω		3 April 25	15 26.4	44.8	+14 32 30.4	2 10.4	16 16 11.2	+14 30 20.0
4270	" . . .		3 April 27	15 26.8	44.7	14 32 23.5	2 10.7	16 11.5	30 12.8
4271	" . . .		3 April 28	15 27.0	44.7	+14 32 25.0	2 10.9	16 11.7	30 14.1
4272	3 Ophiuchi υ	5	3 July 10	16 8.0	50.5	— 7 52 58.1	2 17.1	16 16 58.5	— 7 54 45.2
4273	Antares . . .		3 April 19	16 10.7	60.0	25 56 15.6	2 16.5	16 17 10.7	—25 58 32.1
4274	" . . .	1	3 May 16	16 10.8	59.4	25 56 13.0	2 14.6	17 10.2	58 27.6
4275*	" . . .		3 May 31	16 11.3	59.2	25 56 16.1	2 15.5	17 10.5	58 31.6
4276	" . . .		3 July 5	16 11.3	59.0	25 56 14.5	2 12.9	17 10.3	58 27.4
4277	" . . .		3 July 8	16 10.8	59.0	25 56 18.4	2 12.8	17 9.8	58 31.2
4278	" . . .		3 July 9	16 10.9	59.0	25 56 17.9	2 12.7	17 9.9	58 30.6
4279	" . . .		3 July 19	16 10.9	59.1	25 56 15.6	2 12.4	17 10.0	58 28.0
4280	" . . .		3 July 23	16 10.8	59.1	25 56 14.2	2 12.4	17 9.9	58 26.6
4281	" . . .		3 July 26	16 10.5	59.1	25 56 16.0	2 12.4	17 9.6	58 28.4
4282	" . . .		3 July 29	16 10.9	59.1	25 56 17.9	2 12.4	17 10.0	58 30.3
4283	" . . .		4 Sept. 17	16 14.0	55.8	—25 56 26.2	2 4.7	17 9.8	58 30.9
4284	Lalande 29960, 1	7	3 May 13	16 51.7	43.7	+16 28 9.6	2 11.4	16 17 35.4	+16 25 58.2
4285	" . . .	7.8	3 May 15	16 52.0	43.7	16 28 14.6	2 12.6	17 35.7	26 2.0
4286	25 Herculis . .		3 May 29	17 43.4	33.4	+37 53 39.6	2 14.1	16 18 16.8	+37 51 25.5
4287	649 Mayer . .	7	3 July 9	18 8.5	59.1	—26 3 9.2	2 10.4	16 19 7.6	—26 5 19.6
4288	8 Ophiuchi ϕ		3 July 23	(18)		16 7 37.2	2 16.0	16 (19)	—16 9 53.2
4289	" . . .		4 June 5	18 50.3	51.5	16 7 46.9	2 2.3	19 41.8	9 49.2
†4290		6	3 May 31	18 51.7	50.7	3 16 26.8	2 11.2	16 19 42.4	— 3 18 38.0
4291	Bessel, W.425 .	7.8	3 July 10	18 51.7	51.4	— 7 1 42.5	2 13.6	16 19 43.1	— 7 3 56.1
4292	Lalande 30024–6 .	7.8	3 May 13	19 22.8	42.7	+18 52 35.4	2 7.9	16 20 5.5	+18 50 27.5
4293	" . . .		3 May 15	19 22.9	42.7	+18 52 33.2	2 8.3	20 5.6	50 24.9
4294	9 Ophiuchi ω		3 July 19	19 21.3	57.1	—20 59 22.8	2 9.8	16 20 18.4	—21 1 32.6
4295	" . . .	7	3 July 26	19 20.8	57.1	—20 59 22.7	2 10.0	20 17.9	1 32.7
4296	26 Herculis . .	7	3 April 27	19 45.2	36.4	+33 11 15.2	2 3.3	16 20 21.6	+33 9 11.9
4297	" . . .	7	3 April 28	19 45.4	36.4	+33 11 13.3	2 3.5	20 21.8	9 9.8
4298	Lalande 30051 .	6.7	3 May 16	20 6.5	54.0	—11 57 8.8	2 8.8	16 21 0.5	—11 59 17.6
4299	27 Herculis β		3 May 29	20 56.5	41.2	+21 58 9.8	2 9.0	16 21 37.7	+21 56 0.8
4300	" . . .		3 July 29	20 56.4	41.3	21 58 22.6	2 19.9	21 37.7	56 2.7
4301	" . . .		4 Sept. 17	20 58.3	39.3	21 58 18.6	2 13.5	21 37.6	56 5.1
4302*	Flamsteed, B.2269	6	3 April 28	21 10.6	42.1	20 57 35.4	2 0.5	16 21 52.7	+20 55 34.9
4303	" . . .	6	3 May 13	21 10.8	41.8	20 57 37.8	2 3.9	21 52.6	55 33.9
4304	28 Herculis . .	7	4 June 5	22 0.2	44.1	5 59 29.9	1 59.5	16 22 44.3	+ 5 57 30.4
4305	29 Herculis h		3 May 31	22 30.8	45.2	+11 57 49.5	2 6.8	16 23 16.0	+11 55 42.7
4306	23 Scorpii τ		3 July 5	22 27.7	59.9	—27 45 5.2	2 4.5	16 23 27.6	—27 47 9.7
4307	" . . .		3 July 8	22 27.3	59.9	27 45 12.4	2 4.4	23 27.2	47 16.8
4308	" . . .		3 July 9	22 27.0	59.9	27 45 14.5	2 4.3	23 26.9	47 18.8
4309	" . . .		3 July 19	22 27.2	59.9	27 45 10.2	2 1.2	23 27.1	47 11.4
4310	" . . .		3 July 23	16 22 27.5	+ 60.0	—27 45 7.3	— 2 1.1	16 23 27.5	—27 47 8.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4311	23 Scorpii τ		3 July 26	16 22 27.3	+ 60.0	—27 45 11.3	— 2 1.1	16 23 27.3	—27 47 12.4
4312*	31 Herculis . .		3 May 29	23 24.9	36.3	+33 59 9.9	2 6.2	16 24 1.2	+33 57 3.7
4313	32 Herculis . .		3 April 27	25 4.4	37.5	30 57 32.6	1 55.9	16 25 41.9	+30 55 36.7
4314	" . . .	7.8	3 April 28	25 4.4	37.5	30 57 35.5	1 56.3	25 41.9	55 39.2
4315	" . . .	6.7	3 May 13	25 5.1	37.2	30 57 37.7	1 59.7	25 42.3	55 38.0
4316	" . . .	8	3 May 15	25 5.2	37.2	+30 57 34.4	2 0.2	25 42.4	55 34.2
4317	12 Ophiuchi . .		3 June 3	25 1.2	50.2	— 1 50 59.6	2 3.4	16 25 51.4	— 1 53 3.0
4318	Lalande 30193 .	7	3 July 10	25 8.7	48.7	+ 1 50 39.7	2 7.4	16 25 57.4	+ 1 48 32.3
4319	13 Ophiuchi ζ		3 April 19	25 15.9	53.9	—10 6 58.3	2 0.9	16 26 9.8	—10 8 59.2
4320*	" . . .		3 May 16	25 16.2	53.4	10 6 57.0	2 1.7	26 9.6	8 58.7
4321	" . . .		3 July 23	25 16.7	53.0	10 6 54.7	2 5.1	26 9.7	8 59.8
4322	" . . .		3 July 26	(25)	53.1	10 6 55.8	2 5.5	(26)	9 1.3
4323	" . . .		4 Oct. 1	25 19.2	50.3	10 7 2.0	1 59.1	26 9.5	9 1.1
4324	653 Mayer . .	8	3 July 9	25 57.8	55.8	—17 46 19.3	2 2.0	16 26 53.6	—17 48 21.3
4325	33 Herculis . .		3 May 29	26 22.0	46.8	+ 7 33 28.4	2 0.8	16 27 8.8	+ 7 31 27.6
4326	35 Herculis σ		3 May 13	27 9.5	30.1	42 53 18.1	1 56.7	16 27 39.6	+42 51 21.4
4327	" . . .		3 May 15	27 9.9	30.1	42 53 18.1	1 57.4	27 40.0	51 20.7
4328	Piazzi 133 . .	6.7	3 April 27	27 4.7	44.4	14 55 24.9	1 55.6	16 27 49.1	+14 53 29.3
4329	" . . .	7.6	3 April 28	27 4.6	44.4	+14 55 22.1	1 55.9	27 49.0	53 26.2
4330*	Bessel, W.592 .	7	3 July 8	27 25.8	49.6	— 0 47 7.3	2 3.6	16 28 15.4	— 0 49 10.9
4331*	Lalande 30273,4 .	7	3 May 31	27 50.5	52.8	9 6 8.8	1 59.3	16 28 43.3	— 9 8 8.1
4332	655 Mayer . .	7.8	3 July 9	28 47.2	55.8	17 37 25.5	1 58.2	16 29 43.0	—17 39 23.5
4333	24 Scorpii . .	6	3 July 9	29 5.8	55.7	—17 18 38.0	1 58.0	16 30 1.5	—17 20 36.0
4334	Groombridge 6223	6	3 May 13	29 55.5	26.9	+47 3 17.6	1 52.9	16 30 22.4	+47 1 24.7
4335	" . . .	6	3 May 15	29 55.8	26.8	47 3 19.8	1 53.4	30 22.6	1 26.4
4336	36 Herculis m^1		3 May 29	29 52.0	47.9	4 38 27.8	1 56.3	16 30 39.9	+ 4 36 39.5
4337	37 Herculis m^2	6.7	3 May 16	29 55.4	48.0	4 39 15.1	1 54.6	16 30 43.4	+ 4 37 20.5
4338	" . . .		3 May 29	29 55.7	47.9	4 39		30 43.6	37
4239	Lalande 30344 .	6.7	3 April 27	30 8.1	41.4	22 26 44.2	1 49.7	16 30 49.5	+22 24 54.5
4340	" . . .	7.6	3 April 28	30 8.3	41.2	22 26 44.3	1 49.8	30 49.5	24 54.5
4341	14 Ophiuchi . .	6	3 May 31	30 46.1	49.0	1 36 31.0	1 55.3	16 31 35.1	+ 1 34 35.7
4342	38 Herculis . .	7	3 July 19	30 51.1	47.5	5 18 11.2	2 1.6	16 31 38.6	+ 5 16 9.6
4343	" . . .		3 July 23	30 50.6	47.5	5 18 11.8	1 59.5	31 38.1	16 12.3
4344	" . . .	7	4 June 5	30 53.1	44.3	5 17 58.2	1 48.2	31 37.4	16 10.1
4345	Flamsteed, B.2299	6.7	3 April 27	32 3.0	40.1	25 17 4.2	1 46.7	16 32 43.1	+25 15 17.5
4346*	" . . .	6	3 April 28	32 3.3	40.1	25 17 4.6	1 47.0	32 43.4	15 17.6
4347	" . . .		3 July 29	32 3.5	39.7	25 17 16.2	2 5.9	32 43.2	15 10.3
4348	Lalande 30446 .	6.7	3 July 10	32 27.0	36.7	(49)		16 33 3.7	(+49)
4349	42 Herculis . .		3 July 10	32 40.7	36.7	49 21 37.2	2 5.2	16 33 17.4	+49 19 32.0
4350	39 Herculis . .		3 May 29	32 51.1	38.6	27 20 37.6	1 52.7	16 33 29.7	+27 18 44.9
4351	40 Herculis ζ		3 May 15	33 9.6	36.5	32 0 2.4	1 48.9	16 33 46.1	+31 58 13.5
4352	" . . .		3 July 8	33 10.1	36.3	32 0 18.6	2 2.0	33 46.4	58 16.6
4353	" . . .		3 July 26	33 9.6	36.3	32 0 24.2	2 2.6	33 45.9	58 21.6
4354	Lalande 30438 .		3 June 3	33 10.5	41.0	22 0 54.9	1 53.2	16 33 51.5	+21 59 1.7
4355	Lalande 30448 .		3 June 3	33 30.7	41.0	22 4		16 34 11.7	+22 2
4356	41 Herculis . .	6	3 May 31	34 29.4	47.1	6 30 54.8	1 50.4	16 35 16.5	+ 6 29 4.4
4357	" . . .	6	3 July 19	34 29.3	47.0	6 30 58.2	1 57.0	35 16.3	29 1.2
4358	" . . .	6.7	3 July 23	34 29.6	47.0	6 30 56.9	1 57.3	35 16.6	28 59.6
4359	44 Herculis η		3 May 15	35 30.3	32.2	39 20 21.5	1 45.4	16 36 2.5	+39 18 36.1
4360	" . . .		3 July 8	35 30.6	32.0	39 20 33.5	1 59.9	36 2.6	18 33.6
4361	43 Herculis i	6	3 May 16	35 27.4	46.4	8 59 16.8	1 46.6	16 36 13.8	+ 8 57 30.2
4362	Flamsteed, B.2310	6	3 April 27	35 35.8	43.9	16 9 16.3	1 43.7	16 36 19.7	+16 7 32.6
4363	" . . .	6	3 April 28	35 35.8	43.9	16 9 15.8	1 43.0	36 19.7	7 32.8
4364	19 Ophiuchi . .		3 May 29	36 16.6	48.6	2 28 0.4	1 47.7	16 37 5.2	+ 2 26 12.7
4365	46 Herculis . .	7	3 July 23	36 29.9	37.9	+28 45 52.7	1 59.7	16 37 7.8	+28 43 53.0
4366	26 Scorpii ε		3 July 26	36 11.0	63.1	—33 53 12.0	1 44.3	16 37 14.1	—33 54 56.3
4367*	45 Herculis e		3 May 31	37 8.6	47.4	+ 5 38 50.9	1 46.7	16 37 56.0	+ 5 37 4.2
4368	20 Ophiuchi . .		3 July 29	37 53.6	53.2	—10 23 9.7	1 48.6	16 38 46.8	—10 24 58.3
4369	Lalande 30590 .	6.7	3 April 27	38 11.4	44.8	+13 59 4.4	1 39.4	16 38 56.2	+13 57 25.0
4370*	" . . .	6.7	3 July 23	16 38 11.8	+ 44.2	+13 59 12.8	— 1 54.0	16 38 56.0	+13 57 18.8

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4371	Lalande 30590	6.7	3 July 19	16 38 11.5	+ 44.2	+13 59 11.1	— 1 53.7	16 38 55.7	+13 57 17.4
4372	Bessel, W.1289	7	3 May 15	38 26.8	29.2	43 37 6.7	1 41.3	16 38 56.1	+43 35 25.4
4373	"	6	3 June 3	38 26.9	29.0	43 37 14.6	1 46.9	38 55.9	35 27.7
4374	Flamsteed, B.2318	6.5	3 April 27	(39)		13 38 53.9	1 37.6	16(40)	+13 37 16.3
4375	"	6	3 July 19	39 37.3	44.3	13 39 6.6	1 51.6	40 21.6	37 15.0
4376	"	6	3 July 23	39 37.1	44.3	13 39 4.8	1 52.0	40 21.4	37 12.8
4377	47 Herculis k		3 May 16	39 50.3	47.8	7 37 55.4	1 35.5	16 40 38.1	+ 7 36 19.9
4378	21 Ophiuchi		3 May 31	40 28.2	48.9	1 35 52.2	1 41.9	16 41 17.1	+ 1 34 10.3
4379	48 Herculis		3 May 29	40 51.8	37.0	30 20 41.6	1 41.4	16 41 28.8	+30 19 0.2
4380	50 Herculis		3 May 29	42 13.7	37.1	30 11 7.3	1 39.7	16 42 50.8	+30 9 27.6
4381	"	6	3 June 3	42 14.3	37.0	30 11 1.8	1 41.0	42 51.3	9 20.8
4382	49 Herculis	7	3 April 27	42 14.3	44.2	15 20 46.7	1 33.6	16 42 58.5	+15 19 13.1
4383	"	7	3 April 28	42 14.9	44.2	15 20 42.8	1 33.8	42 59.1	19 9.0
4384	"		3 May 31	42 14.4	43.7	15 20 56.2	1 39.6	42 58.1	19 16.6
4385	Lalande 30704	7	3 May 15	42 35.4	35.8	32 55 31.6	1 35.5	16 43 11.2	+32 53 56.1
4386	"	6.7	3 July 19	42 35.8	35.6	32 55 51.2	1 51.3	43 11.4	53 59.9
4387	"	6	3 July 23	42 35.9	35.7	32 55 49.3	1 52.0	43 11.6	53 57.3
4388	52 Herculis		3 July 26	42 56.8	27.1	46 22 15.4	1 54.0	16 43 23.9	+46 20 21.4
4389*	51 Herculis		3 July 9	42 48.6	39.4	+25 1 56.0	1 47.8	16 43 28.0	+25 0 8.2
4390	23 Ophiuchi	6.5	3 July 29	43 3.4	51.5	— 5 47 12.8	1 42.9	16 43 54.9	— 5 48 55.7
4291	Arg. Z., Oel.16568	8	3 May 13	43 50.0	26.4	+47 1 9.4	1 33.0	16 44 16.4	+46 59 36.4
4392	"	8.9	3 May 15	43 49.5	26.4	47 1 13.1	1 33.5	44 15.9	59 39.6
4393	54 Herculis		3 May 31	45 52.7	42.2	18 47 20.8	1 34.7	16 46 34.9	+18 45 46.1
4394	56 Herculis		3 May 29	46 11.7	39.0	26 5 19.6	1 33.8	16 46 50.7	+26 3 45.8
4395*	Groombridge 2389	6	3 April 28	46 43.8	29.6	43 11 59.3	1 24.7	16 47 13.4	+43 10 34.6
4396	"	7	3 May 13	46 43.8	28.9	43 12 5.7	1 28.8	47 12.7	10 36.9
4397	"	8.9	3 May 15	46 43.6	29.3	43 11 27.0	1 29.2	47 12.9	[9 57.8]
4398	"	6	3 June 3	46 43.8	29.1	43 12 6.5	1 34.9	47 12.9	10 31.6
4399*	"	7	3 July 19	46 43.0	29.2	43 12 22.7	1 47.0	47 12.2	10 35.7
4400	"	7	3 July 23	46 44.1	29.3	+43 12 23.8	1 47.8	47 13.4	10 36.0
4401	666 Mayer		3 July 29	46 45.2	59.0	—24 44 51.8	1 32.6	16 47 44.2	—24 46 24.4
4402	26 Ophiuchi	6.5	3 July 29	46 56.2	58.7	—24 38 38.9	1 32.4	16 47 54.9	—24 40 11.3
4403	27 Ophiuchi κ		3 July 26	47 26.2	45.8	+ 9 43 25.2	1 40.7	16 48 12.0	+ 9 41 44.5
4404	Lalande 30862	7.8	3 May 31	47 30.4	42.3	18 34 55.9	1 32.3	16 48 12.7	+18 33 23.6
4405	Lalande 30897	9	3 July 23	49 5.4	35.7	32 85 11.3	1 42.8	16 49 41.1	+32 33 28.5
4406	Johnson 5630	6	3 April 28	50 5.2	26.0	47 42 29.6	1 19.7	16 50 31.2	+47 41 9.9
4407	"	8	3 May 13	50 5.1	25.7	47 42 37.7	1 23.8	50 30.8	41 13.9
4408	"	8	3 May 15	50 5.4	25.7	47 42 36.6	1 24.4	50 31.1	41 12.2
4409	Groombridge 2392	7	3 June 3	51 4.1	29.2	42 51 9.9	1 28.7	16 51 33.3	+42 49 41.2
4410	"	6.7	3 July 19	51 2.7	29.4	42 51 20.3	1 40.7	51 32.1	49 39.6
4411	"	6	3 July 23	51 3.0	29.4	42 51 17.7	1 41.5	51 32.4	49 36.2
4412	Arg. Z., Oel. 16677	8	3 April 28	51 44.7	26.0	+47 40 37.7	1 17.2	16 52 10.7	+47 39 20.5
4413	31 Ophiuchi	6.7	3 July 29	51 27.1	59.2	—25 19 18.1	1 26.0	16 52 26.3	—25 20 44.1
4414	Lalande 30990,1	6.7	3 May 31	51 51.6	40.4	+22 57 40.7	1 26.1	16 52 32.0	+22 56 14.6
4415	58 Herculis ε		3 May 29	52 2.0	36.4	31 15 14.3	1 25.5	16 52 38.4	+31 13 48.8
4416	"		3 July 23	52 2.7	36.4	31 15 21.5	1 38.4	52 39.1	13 43.1
4417	"		3 Aug. 20	52 2.4	36.8	31 15 27.8	1 42.0	52 39.2	13 45.8
4418	32 Ophiuchi		3 July 26	53 14.4	43.9	14 24 58.7	1 33.7	16 53 58.3	+14 23 25.0
4419	59 Herculis d	6	3 May 13	53 38.5	35.1	33 53 17.1	1 18.9	16 54 13.6	+33 51 58.2
4420	"	6	3 May 15	53 38.9	35.1	33 53 14.9	1 19.4	54 14.0	51 55.5
4421	"	7.8	3 June 3	53 38.7	34.8	33 53 22.7	1 24.5	54 13.5	51 58.2
4422	33 Ophiuchi		3 July 29	53 44.2	44.1	13 55 33.5	1 32.8	16 54 28.3	+13 54 0.7
4423	34 Ophiuchi		3 July 29	54 2.2	44.1	13 53 29.5	1 32.8	16 54 46.3	+13 51 56.7
4424	Lalande 31072	6.7	3 April 28	54 48.8	29.6	43 2 23.7	1 13.0	16 55 18.4	+43 1 10.7
4425	"	7.8	3 July 19	54 48.5	29.1	43 2 51.3	1 35.5	55 17.6	1 15.8
4426	"	8	3 July 23	54 49.2	29.2	43 2 50.7	1 36.3	55 18.4	1 14.4
4427	60 Herculis		3 May 29	55 21.4	44.5	13 2 55.5	1 20.7	16 56 5.9	+13 1 34.8
4428	"		3 May 31	55 21.7	44.5	13 2 57.5	1 21.1	56 6.2	1 36.4
4429*	"		3 July 26	55 21.7	44.4	13 3 5.1	1 30.5	56 6.1	1 34.6
4430	Lalande 31134	8	3 May 13	16 56 12.1	+ 38.0	+28 23 42.9	— 1 15.5	16 56 50.1	+28 22 27.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4431	Lalande 31134 .	9	3. May 15	16 56 11.7	+ 38.0	+28 23 43.7	− 1 16.0	16 56 49.7	+28 22 27.7
4432	35 Ophiuchi η		3 Aug. 20	58 0.0	55.4	−15 26 33.2	1 20.5	16 58 55.4	−15 27 53.7
4433	Groombridge 2408	6	3 April 28	58 31.8	28.7	+44 6 30.2	1 7.4	16 59 0.5	+44 5 22.8
4434	" . . .	7	3 May 13	58 31.6	28.4	44 6 38.0	1 11.4	59 0.0	5 26.6
4435	" . . .	7.8	3 May 15	58 31.7	28.4	44 6 35.3	1 12.1	59 0.1	5 23.2
4436	" . . .	6.7	3 July 26	58 31.5	28.3	44 6 58.4	1 31.6	58 59.8	5 26.8
4437	2172 Bradley .	6.7	3 July 29	58 58.1	33.9	35 37 22.0	1 30.2	16 59 32.0	+35 35 51.8
4438	Lalande 31222 .	8	3 July 19	59 8.3	38.1	27 25		16 59 46.4	+27 24
4439	Piazzi 313 . .	8	3 July 19	59 20.1	38.1	27 23 35.9	1 26.7	16 59 58.2	+27 22 9.2
4440	62 Herculis . .		3 May 29	59 37.8	39.5	24 46 40.1	1 14.6	17 0 17.3	+24 45 25.5
4441	" . . .	7.8	3 May 31	16 59 38.0	39.5	24 46 37.6	1 15.0	0 17.5	45 22.6
4442*	Anonyma . . .	7.8	3 April 28	17 1 2.6	25.5	47 57 23.9	1 13.6	17 1 28.1	+47 56 10.3
4443	Piazzi 7 . . .	6.7	3 July 29	1 14.1	38.5	26 44 18.8	1 25.6	17 1 52.6	+26 42 53.2
4444	Lalande 31295 .	8.7	3 July 23	1 17.1	40.8	21 29 40.9	1 23.6	17 1 57.9	+21 28 17.3
4445	Arg. Z., Oel. 16837	8.9	3 May 13	1 37.9	24.5	48 40 44.9	1 7.1	17 2 2.4	+48 39 37.8
4446*	" . . .	8	3 May 15	1 38.2	24.5	48 40 47.7	1 7.6	2 2.7	39 40.1
4447	Lalande 31292 .	7	3 July 26	1 41.1	34.9	33 39 10.5	1 25.7	17 2 16.0	+33 37 44.8
4448	63 Herculis . .	7	3 May 31	2 6.9	39.6	24 30 39.5	1 11.3	17 2 46.5	+24 29 28.2
4449	37 Ophiuchi . .	6	3 Aug. 20	2 16.9	45.5	10 51 36.3	1 22.5	17 3 2.4	+10 50 13.8
4450	Lalande 31316 .	7.8	3 July 29	2 42.5	35.6	32 27 46.2	1 24.4	17 3 18.1	+32 26 21.8
4451	Lalande 31320 .	7	3 July 23	2 52.7	40.8	21 30 4.4	1 21.1	17 3 33.5	+21 28 43.3
4452	Lalande 31357 .	7	3 July 19	4 26.9	40.7	21 41 46.9	1 18.3	17 5 7.6	+21 40 28.6
4453	" . . .	7	3 July 23	4 26.9	40.7	21 41 46.4	1 18.9	5 7.6	40 27.5
4454	" . . .	7.8	3 July 29	4 26.8	40.7	21 41 47.3	1 19.9	5 7.5	40 27.4
4455	64 Herculis α		3 May 29	4 48.2	43.9	14 38 51.0	1 7.8	17 5 32.1	+14 37 43.2
4456	" . . .		3 May 31	4 48.4	43.8	14 38 52.7	1 7.5	5 32.2	37 45.2
4457	" . . .		3 July 26	4 48.5	43.7	14 39 0.6	1 17.5	5 32.2	37 43.1
4458	" . . .		3 Aug. 20	4 48.1	43.9	14 39 1.4	1 20.1	5 32.0	37 41.3
4459	" . . .	2.3	3 Sept. 2	4 47.8	44.2	14 39 1.6	1 20.8	5 32.0	37 40.8
4460	Johnson 3678 .	7.8	3 May 13	5 23.1	27.1	45 35 19.0	1 1.4	17 5 50.2	+45 34 17.6
4461	" . . .	7.8	3 May 15	5 23.3	27.1	45 35 14.8	1 1.8	5 50.4	34 13.0
4462	65 Herculis δ		3 April 28	6 9.3	39.8	25 6 2.3	0 58.2	17 6 49.1	+25 5 4.1
4463	Lalande 31418 .	6	3 July 23	6 43.0	39.6	23 59 43.7	1 16.2	17 7 22.6	+23 58 27.5
4464	67 Herculis π		3 April 28	(7)		37 3 27.3	0 54.8	17 (8)	+37 2 32.5
4465	" . . .		3 May 15	7 32.3	33.0	37 3 30.2	0 59.0	8 5.3	2 31.2
4466	" . . .		3 June 3	7 32.4	32.8	37 3 34.1	1 4.3	8 5.2	2 29.8
4467	66 Herculis ω		3 May 29	8 27.7	45.3	11 6 30.8	1 2.0	17 9 13.0	+11 5 28.8
4468	Lalande 31483 .	6.7	3 July 19	8 33.8	39.9	23 20 9.6	1 12.7	17 9 13.7	+23 18 56.9
4469*	" . . .	6.7	3 July 23	8 33.6	39.9	+23 20 6.3	1 13.4	9 13.5	18 52.9
4470	Lalande 31496 .	8	3 May 31	8 55.5	49.6	− 0 5 19.6	1 2.2	17 9 45.1	− 0 6 21.8
4471	68 Herculis μ	6	3 May 13	9 21.1	35.3	+33 20 20.6	0 56.1	17 9 56.4	+33 19 24.5
4472	" . . .	6.5	3 May 15	9 21.2	35.2	33 20 20.0	0 56.5	9 56.4	19 23.5
4473	69 Herculis e	6.7	3 June 3	10 14.8	32.4	37 31 22.8	1 0.4	17 10 47.2	+37 30 22.4
4474	" . . .		3 July 26	10 14.1	32.5	37 31 46.3	1 14.0	10 46.6	30 32.3
4475	70 Herculis . .		3 May 31	12 0.2	39.4	24 43 29.6	0 57.0	17 12 39.6	+24 42 32.6
4476	" . . .		3 July 19	12 0.4	39.2	24 43 35.5	1 8.2	12 39.6	42 27.3
4477	" . . .		3 July 23	12 0.5	39.2	24 43 34.6	1 9.1	12 39.7	42 25.5
4478	72 Herculis w	6.7	3 May 13	12 35.7	35.5	32 45 8.4	0 51.4	17 13 11.2	+32 44 17.0
4479*	" . . .	6	3 May 15	12 35.3	35.5	32 45 9.2	0 51.8	13 10.8	44 17.4
4480	Lalande 31638 .	8	3 July 26	12 51.3	39.6	+23 54 35.7	1 7.8	17 13 30.9	+23 53 27.9
4481	45 Ophiuchi . .	3.4	3 July 29	13 34.4	61.4	−29 39 17.1	0 54.8	17 14 35.8	−29 40 11.9
4482	74 Herculis . .		3 Aug. 20	14 16.4	26.6	+46 27 49.3	1 13.2	17 14 43.0	+46 26 36.1
4483	Groombridge 2435	7	3 May 13	14 39.6	31.0	40 11 32.7	0 47.8	17 15 10.6	+40 10 44.9
4484*	" . . .	7	3 May 15	14 39.2	30.9	40 11 42.1	0 48.3	15 10.1	10 53.8
4485	73 Herculis . .		3 May 31	15 4.9	40.1	23 10 18.4	0 52.5	17 15 45.0	+23 9 25.9
4486	" . . .	6.7	3 July 19	15 4.9	39.9	23 10 23.3	1 3.4	15 44.8	9 19.9
4487	" . . .	6.7	3 July 23	15 4.6	39.9	23 10 24.1	1 4.1	15 44.5	9 20.0
4488	49 Ophiuchi σ		3 May 29	15 47.7	47.9	4 20 26.0	0 51.8	17 16 35.6	+ 4 19 34.2
4489	75 Herculis ρ		3 Sept. 2	16 14.1	33.2	37 21 28.2	1 10.6	17 16 47.3	+37 20 17.6
4490*	Lalande 31759–61	7	3 July 26	17 16 38.9	+ 35.1	+32 52 37.0	− 1 4.0	17 17 14.0	+32 51 33.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4491	Groombridge 2436	8	3 May 15	17 16 45.8	+ 31.8	+38 47 0.3	— 0 45.2	17 17 17.6	+38 46 15.1
4492	Lacaille 7334	4	3 April 28	18 19.3	60.9	—26 5 8.3	0 51.2	17 19 20.2	—26 5 59.5
4493	Lalande 31844	7.8	3 May 15	19 1.1	34.2	+34 52 57.5	0 42.2	17 19 35.3	+34 52 15.3
4494	77 Herculis x		3 May 29	21 2.6	24.2	48 26 44.7	0 42.7	17 21 26.8	+48 26 2.0
4495	Piazzi 133	8.9	3 July 23	21 4.1	42.2	17 41 25.7	0 54.5	17 21 46.3	+17 40 31.2
4496	76 Herculis λ		3 May 15	22 0.7	38.8	26 16 49.3	0 38.3	17 22 39.5	+26 16 11.0
4497	"		3 July 26	22 0.8	38.4	26 17 8.0	0 55.2	22 39.2	16 12.8
4498	"		3 July 29	22 0.7	38.4	26 17 7.6	0 55.6	22 39.1	16 12.0
4499	"		3 Aug. 20	22 1.0	38.7	26 17 11.3	0 58.6	22 39.7	16 12.7
4500	Lalande 31960	7	3 May 13	22 17.7	43.1	16 59 36.1	0 38.6	17 23 0.8	+16 58 57.5
†4501	Lalande 31957	6.5	3 April 28	22 35.1	45.5	12 5 48.0	0 36.1	17 23 20.6	+12 5 11.9
4502	Lalande 31994		3 May 15	23 32.7	43.1	16 55 53.6	0 37.0	17 24 15.8	+16 55 16.6
4503	54 Ophiuchi		3 May 31	24 25.8	44.3	13 19 8.3	0 39.2	17 25 10.1	+13 18 29.1
4504	Lalande 32042,3		3 May 15	24 49.7	43.2	16 39 31.7	0 35.2	17 25 32.9	+16 38 56.5
4505	"	6.7	3 Aug. 20	24 48.9	42.9	16 39 50.7	0 52.3	25 31.8	38 58.4
4506	55 Ophiuchi α		3 April 28	24 53.8	45.2	12 43 44.7	0 32.8	17 25 39.0	+12 43 11.9
4507	"		3 May 13	24 54.4	44.9	12 43 37.2	0 35.1	25 39.3	43 2.1
4508	"		3 May 29	24 54.4	44.6	12 43 39.8	0 38.3	25 39.0	43 1.5
4509	"		3 May 31	24 54.6	44.6	12 43 43.4	0 38.5	25 39.2	43 4.9
4510	"		3 July 12	24 55.4	44.2	12 43 45.3	0 46.3	25 39.6	42 59.0
4511*	"		3 July 19	24 55.0	44.2	12 43 48.8	0 47.4	25 39.2	43 1.4
4512*	"		3 July 23	24 55.2	44.2	12 43 47.8	0 47.9	25 39.4	42 59.9
4513	"		3 July 26	24 55.0	44.3	12 43 51.3	0 48.3	25 39.3	43 3.0
4514	"		3 July 29	24 55.2	44.3	12 43 48.3	0 48.7	25 39.5	42 59.6
4515	"		3 Sept. 2	24 54.5	44.7	12 43 52.9	0 51.9	25 39.2	43 1.0
4516	"	2.3	3 Sept. 6	24 54.5	45.0	12 43 51.3	0 52.1	25 39.5	42 59.2
4517	"	2.3	3 Sept. 7	24 54.5	45.0	12 43 52.8	0 52.2	25 39.5	43 0.6
4518	"	2	4 Oct. 6	24 57.0	42.3	12 43 46.5	0 49.5	25 39.3	42 57.0
4519	"	2	4 Oct. 9	24 57.0	42.3	12 43 45.5	0 49.4	25 39.3	42 56.1
4520	Piazzi 177	7	3 July 26	28 14.5	48.4	2 10 4.8	0 41.6	17 29 2.9	+ 2 9 23.2
4521	Bessel, W.620	7	3 April 28	28 26.2	46.3	12 52 29.1	0 25.9	17 29 12.5	+12 52 3.2
4522*	79 Herculis	6	3 May 13	28 37.0	39.7	24 26 45.5	0 28.3	17 29 16.7	+24 26 17.2
4523	"	6.7	3 May 15	28 38.0	39.7	24 26 44.9	0 28.8	29 17.7	26 16.1
4524	"	6	3 July 23	28 37.7	39.2	24 26 59.8	0 44.6	29 16.9	26 15.2
4525*	Groombridge 2447	7.8	3 May 31	30 54.5	23.8	48(35)		17 31 18.3	+48(35)
4526*	82 Herculis y		3 May 29	30 59.9	23.8	48 42 56.9	0 27.7	17 31 23.7	+48 42 29.2
4527	"	7	3 May 31	31 0.8	23.8	+48 42 53.6	0 27.5	31 24.6	42 26.1
4528	58 Ophiuchi d	6	3 July 12	30 29.8	57.7	—21 33 46.9	0 33.2	17 31 27.5	—21 34 20.1
4529*	Piazzi 194	7.6	3 April 28	31 13.5	48.5	+ 4 29 7.1	0 25.4	17 32 2.0	+ 4 28 41.7
4530	"	8	3 July 26	31 14.1	47.3	4 29 17.0	0 37.8	32 1.4	28 39.2
4531	"	7	3 Aug. 20	31 14.4	47.7	4 29 23.6	0 39.9	32 2.1	28 43.7
4532	2228 Bradley	7	3 May 13	32 12.9	39.6	24 37 37.2	0 23.1	17 32 52.5	+24 37 14.1
4533	"	7.6	3 May 15	32 14.0	39.6	24 37 35.9	0 23.5	32 53.6	37 12.4
4534*	Piazzi 204	6	3 July 29	32 34.4	35.7	31 24 55.0	0 41.3	17 33 10.1	+31 24 13.7
4535	60 Ophiuchi β		3 April 28	32 47.2	48.4	4 40 13.3	0 22.9	17 33 35.6	+ 4 39 50.4
4536	"		3 July 26	32 48.5	47.4	4 40 16.3	0 35.5	33 35.9	39 40.8
4537	"		3 Aug. 20	32 48.7	47.6	4 40 15.5	0 37.7	33 36.3	39 37.8
4538	"		3 Sept. 2	32 48.2	47.8	4 40 18.9	0 38.4	33 36.0	39 40.5
4539	"		3 Sept. 6	32 48.2	47.9	4 40 18.2	0 38.5	33 36.1	39 39.7
4540	"		3 Sept. 7	32 48 3	47.9	4 40 19.6	0 38.5	33 36.2	39 41.1
4541	"	3	4 Oct. 6	32 50.7	45.1	4 40 13.3	0 36.9	33 35.8	39 36.4
4542	"	3	4 Oct. 9	32 51.0	45.0	4 40 13.3	0 36.8	33 36.0	39 36.5
4543	85 Herculis ι		3 May 29	33 22.6	26.1	46 7 31.1	0 24.1	17 33 48.7	+46 7 7.0
4544	"		3 May 31	33 23.6	26.0	46 7 33.7	0 24.7	33 49.6	7 9.0
4545	83 Herculis	6.7	3 May 13	33 37.1	39.6	24 40 50.9	0 20.9	17 34 16.7	+24 40 30.0
4546	"	7	3 May 15	33 38.1	39.6	24 40 48.3	0 21.4	34 17.7	40 26.9
4547	84 Herculis		3 May 13	34 29.0	39.7	24 25 45.6	0 21.6	17 35 8.7	+24 25 24.0
4548	"	7	3 May 15	34 30.5	39.7	24 25 43.9	0 20.0	35 10.2	25 23.9
4549	Lalande 32464	7	3 Aug. 20	36 22.7	35.0	33 19 52.4	0 39.3	17 36 57.7	+33 19 13.1
4550	62 Ophiuchi γ		3 May 31	17 37 3.7	+ 48.5	+ 2 48 6.0	— 0 21.5	17 37 52.2	+ 2 47 44.5

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4551	62 Ophiuchi γ		3 July 10	17 37 3.8	+ 48.1	+ 2 48 7.4	— 0 27.1	17 37 51.9	+ 2 47 40.3
4552	" . . .		3 July 12	37 4.3	48.1	2 48 4.8	0 27.4	37 52.4	47 37.4
4553	" . . .		3 July 26	37 4.0	48.1	2 48 10.6	0 29.1	37 52.1	47 41.5
4554	" . . .		3 Sept. 2	37 3.9	48.5	2 48 13.0	0 31.8	37 52.4	47 41.2
4555	" . . .		3 Sept. 6	37 3.7	48.6	2 48 10.2	0 31.9	37 52.3	47 38.3
4556	" . . .	3	4 Oct. 6	37 6.7	45.7	2 48 9.1	0 30.8	37 52.4	47 38.3
4557	" . . .	4	4 Oct. 9	37 6.7	45.8	2 48 6.9	0 30.7	37 52.5	47 36.2
4558	Lalande 32505 .	6	3 July 29	37 33.5	35.6	31 36 5.9	0 33.8	17 38 9.1	+31 35 32.1
4559	Bessel, W.1314 .	6	3 May 13	37 36.1	42.7	17 47 7.0	0 15.9	17 38 18.8	+17 46 51.1
4560	" . . .	6	3 May 15	37 36.7	42.7	17 47 5.6	0 16.2	38 19.4	46 49.4
4561	86 Herculis μ		3 April 28	37 59.9	38.4	27 51 14.8	0 10.9	17 38 38.3	+27 51 3.9
4562	" . . .		3 May 29	38 0.7	37.8	27 51 16.7	0 17.9	38 38.5	50 58.8
4563	" . . .		3 Sept. 6	38 0.5	38.1	27 51 37.5	0 37.3	38 38.6	51 0.2
4564	Piazzi 255 . .	6.7	3 May 13	39 24.4	42.1	19 19 58.2	0 13.1	17 40 6.5	+19 19 45.1
4565	" . . .	7.8	3 May 15	39 25.7	42.0	19 19 56.7	0 13.5	40 7.7	19 43.2
4566*	" . . .	6	3 July 23	39 25.2	41.1	19 20 10.5	0 28.3	40 6.3	19 42.2
4567	Lalande 32600 .	7	3 July 29	40 5.4	34.0	34 21 45.5	0 30.5	17 40 39.4	+34 21 15.0
4568	87 Herculis . .		3 May 31	40 3.8	38.8	25 42 11.4	0 19.7	17 40 42.6	+25 41 51.7
4569	" . . .	5	3 Aug. 20	40 4.2	38.8	25 42 24.0	0 32.5	40 43.0	41 51.5
4570*	Flamsteed, B.2433	7.8	3 May 29	41 20.9	24.7	47 41 27.0	0 12.1	17 41 45.6	+47 41 14.9
4571	Bessel, W.1433 .	7.8	3 May 13	41 42.4	41.3	22 23 5.0	0 9.2	17 42 23.7	+22 22 55.8
4572*	" . . .	7.8	3 May 15	41 43.4	40.7	22 23 8.0	0 9.6	42 24.1	22 58.4
4573	" . . .	6.7	3 July 23	41 43.2	40.0	+22 23 19.2	0 25.2	42 23.2	22 54.0
4574	63 Ophiuchi . .		3 July 10	41 36.2	59.2	—24 49 36.7	0 17.1	17 42 35.4	—24 49 53.8
4575*	" . . .		3 July 12	41 35.9	59.2	—24 49 35.8	0 17.1	42 35.1	49 52.9
4576	Lalande 32688 .	6	3 July 26	42 1.0	36.7	+29 23 32.5	0 26.4	17 42 37.7	+29 23 6.1
4577	" . . .	6.5	3 Aug. 20	42 1.0	37.0	29 23 34.2	0 30.4	42 38.0	23 3.8
4578	Lalande 32698 .	7.6	3 April 28	42 13.0	44.1	15 23 14.8	0 6.7	17 42 57.1	+15 23 8.1
4579	Lalande 32709 .	7.8	3 July 29	43 5.0	32.4	36 54 57.4	0 25.5	17 43 37.4	+36 54 31.9
4580	Anonyma . .	7.8	3 July 26	44 10.6	35.2	32 4 39.7	0 23.7	17 44 45.8	+32 4 16.0
4581	" . . .	8	3 Aug. 20	44 10.8	35.6	32 4 37.6	0 27.9	44 46.4	4 9.7
4582	88 Herculis z		3 May 29	44 25.9	24.0	48 27 21.0	0 7.4	17 44 49.9	+48 27 13.6
4583	Lalande 32810 .	8.9	3 July 29	45 31.7	31.2	38 52 44.7	0 23.0	17 46 2.9	+38 52 21.7
4584	Lalande 32832 .	8.9	3 May 13	45 35.7	36.7	30 25 12.3	0 2.5	17 46 12.4	+30 25 9.8
4585	" . . .	9	3 May 15	45 36.7	36.7	30 25 10.4	0 2.9	46 13.4	25 7.5
4586	90 Herculis f		3 July 10	46 17.2	30.3	40 3 32.8	0 17.4	17 46 47.5	+40 3 15.4
4587	89 Herculis . .		3 May 31	46 42.6	38.7	26 5 37.5	0 4.1	17 47 21.3	+26 5 33.4
4588	" . . .		3 July 26	46 42.8	38.3	26 5 48.3	0 19.1	47 21.1	5 29.2
4589	" . . .		3 Aug. 20	46 42.4	38.6	+26 5 50.0	0 23.1	47 21.0	5 26.9
4590*	5 Sagittarii i		3 July 12	46 56.9	58.9	—24 14 52.6	0 16.0	17 47 55.8	—24 15 8.6
4591*	64 Ophiuchi ν	3	3 April 28	47 8.0	54.1	9(43)		17 48 2.1	— 9(44)
4592	" . . .		3 Sept. 2	47 8.2	53.2	9 43 54.3	0 13.5	48 1.4	44 7.8
4593	" . . .		3 Sept. 6	47 8.3	53.3	9 43 55.6	0 13.5	48 1.6	44 9.1
4594	" . . .		4 Sept. 9	47 11.6	49.7	9 43 59.5	0 13.4	48 1.3	44 12.9
4595*	" . . .		4 Sept. 17	47 11.6	49.8	9 43 58.5	0 13.4	48 1.4	44 11.9
4596	Piazzi 307 . .		3 April 28	(48)		— 4 47 10.5	— 0 3.0	17(48)	— 4 47 13.5
4597*	91 Herculis θ		3 May 13	48 51.4	32.7	+37 17 3.3	+ 0 3.1	17 49 24.1	+37 17 6.4
4598	" . . .		3 May 15	48 52.8	32.7	37 16 58.5	+ 0 2.7	49 25.5	17 1.2
4599	" . . .	4	4 Oct. 6	48 52.0	31.4	+37 17 30.5	— 0 23.6	49 23.4	17 6.9
4600*	57 Serpentis ζ		3 July 10	49 4.4	50.6	— 3 39 42.3	0 9.2	17 49 55.0	— 3 39 51.5
4601	92 Herculis ξ		3 May 31	49 22.9	37.0	+29 16 48.0	0 1.5	17 49 59.9	+29 16 46.5
4602	" . . .		3 Aug. 20	49 22.8	37.0	29 17 1.1	0 19.8	49 59.8	16 41.3
4603	66 Ophiuchi n		3 July 26	49 34.2	47.4	4 23 44.3	0 11.4	17 50 21.6	+ 4 23 32.9
†4604		9	3 July 29	49 50.5	31.9	37 50 9.9	0 22.3	17 50 22.4	+37 49 47.6
4605	67 Ophiuchi o		4 Sept. 9	(49)		2 57 19.3	— 0 13.9	17(50)	+ 2 57 5.4
4606	94 Herculis ν		3 May 29	50 14.6	36.5	30 12 51.3	+ 0 0.5	17 50 51.1	+30 12 51.8
4607	" . . .		3 Sept. 2	50 14.4	35.7	30 13 12.9	— 0 20.1	50 51.1	12 52.8
4608	68 Ophiuchi κ		3 Sept. 6	50 47.5	49.3	1 19 29.7	0 15.7	17 51 36.8	+ 1 19 14.0
4609	Bessel, W.1719 .	7	3 July 29	51 10.7	32.8	36 19 4.4	— 0 14.3	17 51 43.5	+36 18 50.1
4610	Groombridge 2493	8	3 May 13	17 51 26.7	+ 28.5	+43 26 21.2	+ 0 7.6	17 51 55.2	+43 26 28.8

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4611	Groombridge 2493	8.9	3 May 15	17 51 28.0	+ 28.4	+43 26 19.8	+ 0 7.1	17 51 56.4	+43 26 26.9
4612	69 Ophiuchi τ		4 Sept. 17	51 22.6	49.2	− 8 9 55.3	− 0 8.5	17 52 11.8	− 8 10 3.8
4613	Piazzi 339 . .		3 April 28	51 12.9	0 62.9	29 34 13.4	0 5.3	17 52 15.8	−29 34 18.7
4614	10 Sagittarii γ		3 July 12	51 56.1	1 2.8	30 24 34.5	− 0 1.8	17 52 58.9	−30 24 36.3
4615	" . . .		3 Sept. 6	51 56.0	1 2.2	−30 24 34.2	+ 0 0.5	52 58.2	24 33.7
4616	95 Herculis . .		3 May 31	52 20.3	0 40.7	+21 36 21.6	+ 0 2.5	17 53 1.0	+21 36 24.1
4617	" . 1st	5.6	3 Aug. 20	52 20.4	40.6	21 36 36.3	− 0 13.9	53 1.0	36 22.4
4618	" . 2d		3 Aug. 20	52 21.1	40.6	21 36 36.3	− 0 13.9	53 1.7	36 22.4
4619	Johnson 3866 .	8	3 May 13	53 5.3	28.6	43 14 39.9	+ 0 10.0	17 53 33.9	+43 14 49.9
4620	" . . .	8	3 May 15	53 6.5	28.6	43 14 39.0	+ 0 9.5	53 35.1	14 48.5
4621	96 Herculis . .		3 July 10	53 9.3	40.7	20 50 41.2	− 0 5.7	17 53 50.0	+20 50 35.5
4622	97 Herculis . .	7	3 July 26	53 28.7	39.8	22 56 1.4	0 6.6	17 54 8.5	+22 55 52.8
4623	" . . .		3 Sept. 2	53 28.4	40.2	22 56 4.8	0 13.8	54 8.6	55 51.0
4624	Lalande 33130,1 .	7.8	3 July 29	53 42.1	34.5	33 19 21.4	0 10.3	17 54 16.6	+33 19 11.1
4625	70 Ophiuchi p		4 Sept. 9	54 36.0	45.3	+ 2 33 49.9	− 0 7.5	17 55 21.3	+ 2 33 42.4
4626	716 Mayer . .	7	3 July 12	54 23.5	60.8	−28 27 57.5	+ 0 1.2	17 55 24.3	−28 27 56.3
4627	Arg.Z.Oel.17670-3	4.5	3 April 28	55 16.1	57.2	−17 10 4.2	+ 0 4.0	17 56 13.3	−17 10 0.2
4628	Bessel, W.1900	6	3 July 29	56 20.4	40.4	+21 38 27.5	− 0 4.9	17 57 0.8	+21 38 22.6
4629*	2272 Bradley . .		3 July 26	56 30.0	48.2	2 28 6.5	0 1.3	17 57 18.2	+ 2 28 5.2
4630	" . . .	7	3 Aug. 20	56 29.6	48.3	2 28 10.9	− 0 3.3	57 17.9	28 7.6
4631*	98 Herculis . .		3 May 31	56 56.3	40.5	22 12 29.1	+ 0 9.3	17 57 36.8	+22 12 38.4
4632	71 Ophiuchi s^1		3 July 10	56 58.9	45.7	8 43 6.8	+ 0 1.0	17 57 44.6	+ 8 43 7.8
4633	72 Ophiuchi s^2	4.5	3 Sept 2	57 6.0	45.8	9 32 47.4	− 0 5.2	17 57 51.8	+ 9 32 42.2
4634	" . . .	4.5	3 Sept. 6	57 5.9	45.8	9 32 51.1	0 5.4	57 51.7	32 45.7
4635	" . . .		4 Sept. 9	(57)		9 32 48.0	0 6.3	(57)	32 41.7
4636	Piazzi 376 . .	7	3 Sept. 2	57 15.0	45.8	9 28		17 58 0.8	+ 9 28
4637	" . . .	7	3 Sept. 6	57 14.8	45.9	9 28 53.6	− 0 5.1	58 0.7	28 48.5
4638	Lalande 33280 .	6.7	3 July 26	57 14.8	48.3	2 12 12.9	0.0	17 58 3.1	+ 2 12 12.9
4639	Groombridge 2505	8	3 May 13	57 42.3	30.9	40 4 17.6	+ 0 16.6	17 58 13.2	+40 4 34.2
4640	" . . .	8	3 May 15	57 43.2	30.9	40 4 13.0	+ 0 16.2	58 14.1	4 29.2
4641	99 Herculis b		4 Sept. 9	(58)		30 32 36.7	− 0 9.2	17 (59)	+30 32 27.5
4642	" . . .		4 Sept. 17	58 52.3	34.3	30 32 40.5	− 0 9.6	59 26.6	32 30.9
4643	73 Ophiuchi q		3 July 10	58 49.7	47.6	3 58 11.4	+ 0 4.1	17 59 37.3	+ 3 58 15.5
4644	103 Herculis o		3 July 8	59 7.7	36.9	28 44 35.8	+ 0 3.0	17 59 44.6	+28 44 38.8
4645	Bessel. W.28 . .	6.7	3 Aug. 20	59 5.8	48.1	3 6 26.0	− 0 0.6	17 59 53.9	+ 3 6 25.4
4646	Lalande 33376	6.7	3 Aug 20	59 53.2	48.0	3 17 39.4	+ 0 1.3	18 0 41.2	+ 3 17 40.7
4647	102 Herculis . .		4 Sept. 9	17 (59)		20 47 36.6	− 0 6.1	18 (0)	+20 47 30.5
4648*	Bessel, W.66 . .	7.8	3 May 13	18 0 3.2	39.5	24 56 15.2	+ 0 18.4	18 0 42.7	+24 56 33.6
4649*	" . . .	7.8	3 May 15	0 4.3	39.5	24 56 16.7	0 17.9	0 43.8	56 34.6
4650*	Lalande 33412 .	6	3 July 26	0 30.0	42.6	+16 26 54.9	0 2.6	18 1 12.6	+16 26 57.5
4651	13 Sagittarii μ^1		3 April 28	0 49.5	58.9	−21 5 53.7	0 11.0	18 1 48.4	−21 5 42.7
4652*	Lalande 33514 .	6	3 July 26	3 36.7	42.7	+16 13 50.1	0 6.9	18 4 19.4	+16 13 57.0
4653	104 Herculis A		3 May 13	3 46.7	36.3	31 21 28.2	0 24.8	18 4 23.0	+31 21 53.0
4654	" . . .	5.6	3 May 15	3 47.3	36.2	31 21 24.3	0 24.4	4 23.5	21 48.7
4655	" . . .		3 May 31	3 47.0	35.9	31 21 32.0	0 20.1	4 22.9	21 52.1
4656	" . . .		3 July 29	3 47.2	35.6	31 21 46.3	0 4.7	4 22.8	21 51.0
4657	" . . .		3 Aug. 20	3 47.5	35.8	31 21 50.9	+ 0 0.6	4 23.3	21 51.5
4658	" . . .	4.5	3 Sept. 2	3 46.9	36.1	31 21 51.5	− 0 0.9	4 23.0	21 50.6
4659	" . . .		3 Sept. 6	3 46.9	36.1	31 21 52.6	0 1.1	4 23.0	21 51.5
4660	" . . .		4 Sept. 9	3 49.7	33.7	31 21 50.7	0 2.7	4 23.4	21 48.0
4661	" . . .		4 Sept. 17	3 49.2	0 33.9	+31 21 55.6	− 0 3 2	4 23.1	21 52.4
4662	Lacaille 7651 . .	6	3 April 28	3 35.1	1 4.9	−33 26 58.7	+ 0 11.4	18 4 40.0	−33 26 47.3
4663*	Groombridge 2530	7	3 May 13	5 53.0	0 31.9	+38 43 3.9	0 28.8	18 6 24.9	+38 43 32.7
4664	" . . .	6.7	3 May 15	5 53.7	31.9	38 43 2.6	0 28.2	6 25.6	43 30.8
4665	" . . .	6.5	3 Sept. 2	5 52.6	31.8	+38 43 32.3	0 1.0	6 24.4	43 33.3
4666*	19 Sagittarii δ		3 April 28	7 8.7	63.1	−29 54 2.2	0 17.5	18 8 11.8	−29 53 44.7
4667	" . . .		3 July 12	7 10.2	61.5	29 54 24.7	0 19.2	8 11.7	54 5.5
4668*	" . . .		3 Aug. 20	7 10.2	61.6	29 54 18.6	0 20.9	8 11.8	53 57.7
4669	" . . .		4 Sept. 17	7 13.6	57.8	−29 54 18.1	0 19.9	8 11.4	53 58.2
4670	Anonyma . . .	7	3 July 29	18 7 39.0	+ 36.1	+30 20 16.6	+ 0 10.5	18 8 15.1	+30 20 27.1

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4671	Groombridge 2533	7	3 May 13	18 8 56.3	+ 29.6	+42 5 19.7	+ 0 33.7	18 9 25.9	+42 5 53.4
4672	" . . .	7	3 May 15	8 57.4	29.6	42 5 18.0	0 33.2	9 27.0	5 51.2
4673	" . . .	6.5	3 Sept. 2	8 56.0	29.6	42 5 47.5	0 5.0	9 25.6	5 52.5
4674	Lalande 33779 .	8	3 May 31	9 35.9	39.5	24 21 53.9	0 28.3	18 10 15.4	+24 22 22.2
4675	" . . .		3 July 8	9 36.4	39.1	+24 22 1.0	0 18.7	10 15.5	22 19.7
4676	Bessel, W.303 .	6	3 April 28	9 56.8	56.1	−14 28 32.0	0 26.0	18 10 52.9	−14 28 6.0
4677	74 Ophiuchi τ		3 July 10	10 5.3	0 47.8	+ 3 17 34.8	0 20.4	18 10 53.1	+ 3 17 55.2
4678	20 Sagittarii ε		4 Sept. 17	9 53.2	1 0.0	−34 28 16.1	0 25.0	18 10 53.2	−34 27 51.1
4679	105 Herculis . .		3 May 31	10 17.1	0 39.5	+24 21 49.9	0 29.3	18 10 56.6	+24 22 19.2
4680	" . . .		3 July 8	10 17.8	39.0	24 21 59.2	0 19.8	10 56.8	22 19.0
4681	" . . .		4 Sept. 9	10 20.5	36.9	24 22 8.8	0 7.5	10 57.4	22 16.3
4682	Lalande 33814 .	7.8	3 Sept. 2	10 54.7	25.0	48 2 12.1	0 7.0	18 11 19.7	+48 2 19.1
4683	106 Herculis . .		4 Sept. 9	11 12.7	37.9	21 52 57.9	0 9.3	18 11 50.6	+21 53 7.2
4684	2302 Bradley .	6.7	3 July 27	11 33.2	36.5	29 35 1.6	0 16.8	18 12 9.7	+29 35 18.4
4685*	" . . .	6	3 July 29	11 32.8	36.5	29 34 59.3	0 16.3	12 9.3	35 15.6
4686	Lalande 33868 .	8.9	3 May 13	12 16.2	26.3	46 19 20.1	0 38.7	18 12 42.5	+46 19 58.8
4687	" . . .	9	3 May 15	12 17.7	26.3	46 19 20.4	0 38.7	12 44.0	19 59.1
4688	1 Lyræ κ		3 Sept. 6	12 17.8	33.6	35 58 45.6	0 10.3	18 12 51.4	+35 58 55.9
4689	107 Herculis t		3 July 8	12 36.2	36.9	28 46 36.9	0 22.9	18 13 13.1	+28 46 59.8
4690	" . . .		3 July 10	12 36.0	36.9	28 46 40.8	0 22.4	13 12.9	47 3.2
4691	108 Herculis . .		3 July 27	12 39.4	36.4	29 46 6.0	0 18.4	18 13 15.8	+29 46 24.4
4692*	" . . .		3 July 29	12 38.9	36.4	29 46 2.5	0 17.8	13 15.3	46 20.3
4693	" . . .		4 Sept. 14	12 40.3	34.6	29 46 13.1	0 9.0	13 14.9	46 22.1
4694	Lalande 33895 .	6	3 Sept. 7	12 32.6	44.8	11 56 11.3	0 15.9	18 13 17.4	+11 56 27.2
4695	2308 Bradley .	6	3 May 31	13 7.8	40.1	+23 11 2.5	0 33.3	18 13 47.9	+23 11 35.8
4696	Lalande 33933 .	5.6	3 April 28	12 59.2	53.2	− 7 10 35.2	0 37.0	18 13 52.4	− 7 9 58.2
4697	Arg.Z Oel.18209,10	8	4 July 14	13 35.6	54.4	−23 32 28.4	0 25.4	18 14 30.0	−23 32 3.0
4698	109 Herculis . .		3 July 8	14 30.2	40.3	+21 40 55.9	0 26.1	18 15 10.5	+21 41 22.0
4699	" . . .		3 July 10	14 29.5	40.3	21 40 59.6	0 24.3	15 9.8	41 23.9
4700	Lalande 34000 .	6.7	3 Sept. 7	14 49.2	41.4	+20 20 54.5	0 17.1	18 15 30.6	+20 21 11.6
4701	22 Sagittarii λ		3 July 12	14 38.3	59.4	−25 31 28.5	0 29.1	18 15 37.7	−25 30 59.4
4702*	" . . .		3 Aug. 20	14 37.9	59.5	25 31 33.5	0 30.2	15 37.4	31 3.3
4703	" . . .		4 Sept. 17	14 42.0	55.8	−25 31 29.7	0 28.3	15 37.8	31 1.4
4704	Groombridge 2555	6	3 May 13	16 2.3	24.0	+49 0 47.5	0 44.0	18 16 26.3	+49 1 31.5
4705	" . . .	6	3 May 15	16 3.1	24.0	49 0 43.7	0 44.5	16 27.1	1 28.2
4706*	59 Serpentis d		3 April 28	16 8.2	50.4	0 4 41.2	0 39.1	18 16 58.6	+ 0 5 20.3
4707*	" . . .	6	3 July 27	16 10.0	49.0	0 4 51.2	0 27.3	16 59.0	5 18.5
4708	" . . .	6.7	3 Sept. 2	16 9.2	49.3	0 4 57.1	0 24.7	16 58.5	5 21.8
4709	" . . .		4 Sept. 9	16 13.2	46.0	0 4 52.7	0 21.9	16 59.2	5 14.6
4710*	" . . .		4 Sept. 14	16 12.4	46.1	0 4 55.9	0 21.8	16 58.5	5 17.7
4711	Lalande 34067,8	7	3 May 31	16 23.2	38.1	27 17 3.4	0 38.5	18 17 1.3	+27 17 41.9
4712	2 Lyræ μ	6.7	3 July 8	17 8.4	30.7	39 23 51.1	0 29.3	18 17 39.1	+39 24 20.4
4713	Lalande 34128 .	6	4 July 14	17 28.2	43.5	+ 6 4 38.5	0 27.5	18 18 11.7	+ 6 5 6.0
4714	728 Mayer . .	6	3 July 12	17 29.8	56.5	−18 50 54.4	0 29.5	18 18 26.3	−18 50 24.9
4715	Piazzi 84 . . .	7.8	3 July 10	18 0.0	38.1	+26 19 47.8	0 30.4	18 18 38.1	+26 20 18.2
4716	60 Serpentis c		3 July 27	18 26.9	49.8	− 2 6 36.3	0 31.0	18 19 16.7	− 2 6 5.3
4717	" . . .		4 Sept. 9	(18)	46.8	2 6 38.6	0 25.5	(19)	6 13.1
4718	" . . .	6	4 Sept. 14	18 29.5	46.9	2 6 39.3	0 25.5	19 16.4	6 13.8
4719	730 Mayer . .	7	3 July 12	18 46.5	56.3	−18 32 2.0	0 34.5	18 19 42.8	−18 31 27.5
4720	Anonyma . .	9	3 May 13	19 41.0	24.9	+48 10 20.3	0 50.4	18 20 5.9	+48 11 10.7
4721	" . . .	9	3 May 15	19 42.2	24.8	48 10 17.3	0 50.0	20 7.0	11 7.3
4722	Piazzi 100 . .	5.6	3 April 28	20 37.8	40.7	+23 43 41.8	0 51.7	18 21 18.5	+23 44 33.5
4723	733 Mayer . .	7	3 Sept. 6	20 30.5	56.6	−18 30 37.6	0 36.5	18 21 27.1	−18 30 1.1
4724	61 Serpentis e		3 July 27	20 47.6	49.5	1 8 29.9	0 34.2	18 21 37.1	− 1 7 55.7
4725	" . . .		4 Sept. 9	20 51.6	46.4	1 8 30.8	0 28.3	21 38.0	8 2.5
4726	" . . .	6	4 Sept. 14	20 51.0	46.5	1 8 32.1	0 28.2	21 37.5	8 3.9
4727	" . . .		4 Sept. 15	20 51.0	46.5	− 1 8 32.0	0 28.1	21 37.5	8 3.9
4728	Bessel. W.702–4	6.7	3 Sept. 2	21 27.8	42.8	+16 47 32.2	0 27.7	18 22 10.6	+16 47 59.9
4729*	" . . .	6.7	4 July 14	21 30.3	39.5	16 47 22.9	0 32.2	22 9.8	47 55.1
4730	Johnson 3940 .	8	3 July 8	18 21 55.5	+ 27.4	+44 7 23.1	+ 0 36.3	18 22 22.9	+44 7 59.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4731	Johnson 3944 .	8	3 May 31	18 22 33.2	+ 26.1	+46 17 1.1	+ 0 49.4	18 22 59.3	+46 17 50.5
4732	Lalande 34333 .	7	3 May 13	22 35.6	41.2	21 45 19.1	0 51.1	18 23 16.8	+21 46 10.2
4733	Bessel, W 741,2 .	7	3 April 28	23 3.2	36.5	+32 5 52.8	0 56.8	18 23 39.7	+32 6 49.6
4734	Lalande 34354 .	8	3 Sept. 6	22 56.3	56.6	—18 42 20.8	0 29.1	18 23 52.9	—18 41 51.7
4735	1 Aquilæ *m*		3 July 27	23 27.5	52.2	— 8 22 50.7	0 39.3	18 24 19.7	— 8 22 11.4
4736	Piazzi 116 . .	6.7	3 Aug. 20	23 47.1	39.7	+23 28 7.6	0 31.0	18 24 26.8	+23 28 38.6
4737	" . . .	7	3 Sept. 2	23 47.0	39.9	23 28 7.7	0 29.5	24 26.9	28 37.2
4738	Rümker 6596 .	7	3 July 10	24 11.7	42.1	17 34 41.9	0 39.9	18 24 53.8	+17 35 21.8
4739	Lalande 34436 .	7	3 May 13	25 1.8	41.9	20 18 21.0	0 54.5	18 25 43.7	+20 19 15.5
4740	" . . .	7	4 Sept. 9	25 5.1	38.5	20 18 47.0	0 28.1	25 43.6	19 15.1
4741	" . . .	7	4 Sept. 14	25 4.7	38.6	20 18 44.0	0 27.6	25 43.3	19 11.6
4742	" . . .	7.6	4 Sept. 15	25 4.3	38.6	20 18 44.2	0 27.5	25 42.9	19 11.7
4743	Piazzi 127 . .	7.8	3 May 31	25 38.5	31.7	38 40 53.2	0 53.3	18 26 10.2	+38 41 46.5
4744	" . . .	7.8	3 July 8	25 38.9	31.3	38 41 1.9	0 41.9	26 10.2	41 43.8
4745	Lalande 34484,5 .	6.7	3 April 28	26 19.9	35.3	34 17 9.4	1 1.9	18 26 55.2	+34 18 11.3
4746	Piazzi 132 . .	6.7	3 Aug. 20	26 30.9	39.7	23 26 36.0	0 35.0	18 27 10.6	+23 27 11.0
4747*	Lalande 34528,9	6.7	3 April 28	27 25.9	35.3	34 17 11.7	1 3.5	18 28 1.2	+34 18 15.2
4748	Lalande 34536 .	6.7	3 May 13	27 28.4	41.2	21 56 6.6	0 58.7	18 28 9.6	+21 57 5.3
4749	2339 Bradley . .	8	3 May 15	28 8.8	32.1	38 43 17.1	1 1.5	18 28 40.9	+38 44 18.6
4750	" . . .	7	3 May 31	28 8.2	31.8	38 43 26.0	0 57.1	28 40.0	44 23.1
4751	" . . .	9	3 July 8	28 9.1	31.3	38 43 37.4	0 45.7	28 40.4	44 23.1
4752	" . . .	8	3 July 10	28 8.6	31.3	38 43 35.1	0 45.1	28 39.9	44 20.2
4753	" . . .	7.8	3 July 27	28 8.7	31.3	38 43 41.0	0 40.3	28 40.0	44 21.3
4754	" . . .	7	3 Sept. 6	28 7.9	32.0	38 43 50.6	0 32.5	28 39.9	44 23.1
4755	" . . .	7.8	4 Sept. 9	28 10.3	29.5	+38 43 52.9	0 22.1	28 39.8	44 15.0
4756	Bessel, W.784 .	6	4 Sept. 15	28 20.5	48.9	— 7 58 4.8	0 40.1	18 29 9.4	— 7 57 24.7
4757	3 Lyræ *a*		3 April 28	29 36.8	32.7	+38 35 5.0	1 7.5	18 30 9.5	+38 36 12.5
4758	" . . .	1	3 May 15	29 38.7	32.2	38 35 7.2	1 3.7	30 10.9	36 10.9
4759	" . . .		3 May 31	29 37.8	31.9	38 35 16.9	0 59.5	30 9.7	36 16.4
4760	" . . .		3 July 8	29 38.6	31.4	38 35 29.7	0 47.9	30 10.0	36 17.6
4761	" . . .	1	3 July 10	29 37.7	31.4	38 35 29.9	0 47.2	30 9.1	36 17.1
4762	" . . .		3 July 12	29 38.4	31.4	38 35 30.3	0 46.6	30 9.8	36 16.9
4763	" . . .		3 July 26	29 38.3	31.4	38 35 35.4	0 43.0	30 9.7	36 18.4
4764	" . . .		3 July 27	29 38.3	31.4	38 35 34.2	0 42.8	30 9.7	36 17.0
4765	" . . .		3 July 29	29 38.2	31.4	38 35 33.7	0 42.1	30 9.6	36 15.8
4766	" . . .		3 Aug. 20	29 37.8	31.7	38 35 38.9	0 37.2	30 9.5	36 16.1
4767	" . . .		3 Sept. 2	29 38.0	32.0	38 35 41.3	0 35.2	30 10.0	36 16.5
4768	" . . .		3 Sept. 6	29 37.9	32.1	38 35 40.3	0 34.8	30 10.0	36 15.1
4769	" . . .		3 Sept. 7	29 37.9	32.1	38 35 40.2	0 34.7	30 10.0	36 14.9
4770	" . . .		4 July 14	29 39.1	29.1	38 35 29.2	0 42.2	30 8.2	36 11.4
4771	" . . .		4 Sept. 9	29 40.0	29.9	38 35 43.6	0 30.5	30 9.9	36 14.1
4772	" . . .		4 Sept. 14	29 39.6	30.0	38 35 46.2	0 30.0	30 9.6	36 16.2
4773	" . . .	1	4 Oct. 9	29 39.4	30.6	38 35 41.2	0 29.5	30 10.0	36 10.7
4774	" . . .	1	4 Oct. 14	29 39.1	30.7	38 35 44.4	0 29.6	30 9.8	36 14.0
4775	" . . .	1	4 Oct. 15	29 38.5	30.8	38 35 44.8	0 29.6	30 9.3	36 14.4
4776	" . . .	1	4 Oct. 16	29 39.1	30.8	38 35 46.7	0 29.7	30 9.9	36 16.4
4777	" . . .	1	4 Nov. 28	29 38.5	31.5	38 35 39.0	0 35.9	30 10.0	36 14.9
4778	" . . .	1	4 Dec. 28	29 38.1	31.6	+38 35 28.7	0 45.2	30 9.7	36 13.9
4779	2 Aquilæ *o*		4 Sept. 14	30 29.6	49.3	— 9 14 38.4	0 43.4	18 31 18.9	— 9 13 55.0
4780	" . . .	5	4 Sept. 15	30 29.8	49.3	9 14 38.5	0 43.3	31 19.1	13 55.2
4781	3 Aquilæ *n*		3 Sept. 6	31 45.4	52.5	— 8 28 28.7	0 49.1	18 32 37.9	— 8 27 39.6
4782	Groombridge 2627	7	3 May 15	32 36.2	30.9	+40 44 24.6	1 8.3	18 33 7.1	+40 45 32 9
4783	Groombridge 2629	7	3 May 31	32 53.3	32.2	+38 10 13.6	1 4.0	18 33 25.5	+38 11 17.6
4784	28 Sagittarii . .	7	3 July 10	33 18.3	58.0	—22 36 9.8	0 54.9	18 34 16.3	—22 35 14.9
4785	Lalande 34772 .	8.9	3 Sept. 7	33 50.4	41.8	+19 15 57.5	0 44.4	18 34 32.2	+19 16 41.9
4786	4 Aquilæ . . .		3 July 27	33 56.4	48.3	1 51 33.3	0 52.4	18 34 44.7	+ 1 52 25.7
4787*	" . . .		4 Sept. 15	33 58.7	45.4	+ 1 51 19.0	0 44.4	34 44.1	52 3.4
4788	5 Aquilæ . .		3 Aug. 20	35 19.7	49.6	— 1 10 30.1	0 52.7	18 36 9.3	— 1 9 37.4
4789	" . . .	6	3 Sept. 6	35 19.4	49.7	1 10 30.3	0 51.8	36 9.1	9 38.5
4790	Lalande 34842 .	8	3 Sept. 6	18 35 20.4	+ 49.7	— 1 10 39.2	+ 0 51.8	18 36 10.1	— 1 9 47.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4791*	6 Aquilæ l		3 July 29	18 35 42.4	+ 50.9	— 4 57 53.9	+ 0 55.6	18 36 33.3	— 4 56 58.3
4792	Piazzi 179 . .	6	3 April 28	36 1.3	34.2	+36 20 15.7	1 16.8	18 36 35.5	+36 21 32.5
4793*	Groombridge 2644	7	3 May 15	36 5.6	32.0	39 5 11.6	1 13.3	18 36 37.6	+39 6 24.9
4794	110 Herculis . .		4 July 27	36 22.7	40.9	20 21 5.2	0 53.9	18 37 3.6	+20 21 59.1
4795	" . . .	6.5	4 Sept. 14	36 24.2	38.6	20 21 15.2	0 42.6	37 2.8	21 57.8
4796	" . . .	5	4 Sept. 15	36 24.3	38.6	20 21 12.8	0 42.5	37 2.9	21 55.3
4797	Lalande 34904 .	7	3 May 13	36 54.8	35.8	32 58 9.4	1 14.1	18 37 30.6	+32 59 23.5
4798*	4 Lyræ ϵ^1		3 May 15	(37)		39 26 49.6	1 14.1	18(37)	+39 28 3.7
4799*	5 Lyræ ϵ^2		3 May 15	37 13.2	31.8	39 22		18 37 45.0	+39 24
4800	6 Lyræ ζ		4 Sept. 17	(37)		37 23 38.5	0 40.2	18(37)	+37 24 18.7
4801	" . . .	5	4 Oct. 9	37 22.5	31.3	37 23 30.1	0 39.7	37 53.8	24 9.8
4802	" . . .		4 Oct. 15	37 21.8	31.5	37 23 30.7	0 39.8	37 53.3	24 10.5
4803	7 Lyræ . . .	5	4 Oct. 9	37 24.5	31.3	37 22 58.5	0 39.7	18 37 55.8	+37 23 38.2
4804	111 Herculis . .		3 Sept. 2	37 28.6	43.7	17 57 13.8	0 50.1	18 38 12.3	+17 58 3.9
4805	Lalande 35005,7 .	7	3 Aug. 20	38 37.7	48.9	0 36 22.0	0 57.1	18 39 26.6	+ 0 37 19.1
†4806	Rümker 6744 .	7	4 Sept. 15	39 17.2	37.5	23 17 17.3	0 47.1	18 39 54.7	+23 18 4.4
†4807	" . . .	7	4 Oct. 14	39 16.5	38.0	+23 17 11.3	0 45.3	39 54.5	17 56.6
4808	Lalande 35025 .	6.7	3 May 31	39 1.2	60.6	—26 53 10.2	1 3.0	18 40 1.8	—26 52 7.2
4809	Piazzi 203 . .	6.5	3 April 28	39 27.3	43.0	+19 5 38.6	1 18.0	18 40 10.3	+19 6 56.6
4810	Lalande 35045 .	6.7	3 May 13	39 48.1	36.6	31 31 17.5	1 18.7	18 40 24.7	+31 32 36.2
4811	" . . .	6.7	3 May 15	39 48.9	36.6	+31 31 18.2	1 17.7	40 25.5	32 35.9
4812	7 Aquilæ . . .		3 Sept. 6	39 45.6	50.9	— 3 29 43.1	0 58.7	18 40 36.5	— 3 28 44.4
4813	" . . .	7	4 Sept. 14	39 48.8	47.2	3 29 43.5	0 53.7	40 36.0	28 49.8
4814	8 Aquilæ . . .		3 Sept. 6	40 1.5	50.6	3 33		18 40 52.1	— 3 32
4815	" . . .	6	4 Sept. 14	40 4.7	47.2	3 33 17.9	0 54.0	40 51.9	32 23.9
4816	" . . .		4 Sept. 17	40 4.6	47.3	— 3 33 17.4	0 53.9	40 51.9	32 23.5
4817	Lalande 35074,5 .	7	3 Aug. 20	40 35.9	45.0	+10 44 12.5	0 57.5	18 41 20.9	+10 45 10.0
4818	32 Sagittarii ν^1	6	3 July 10	41 6.6	58.1	—22 59 42.5	1 5.7	18 42 4.7	—22 58 36.8
4819	" . . .		3 July 12	41 7.7	58.1	22 59 43.2	1 5.6	42 5.8	58 37.6
4820	" . . .	6	3 Sept. 7	41 7.0	58.3	—22 59 33.3	1 6.6	42 5.3	58 26.7
4821	Lalande 35110 .	6	3 July 27	41 34.7	35.7	+31 23 26.0	1 0.4	18 42 10.4	+31 24 26.4
4822	8 Lyræ ν^1	6	4 Oct. 9	41 46.2	33.8	32 34 36.9	0 46.2	18 42 20.0	+32 35 23.1
4823*	" . . .		4 Oct. 15	41 45.6	34.0	32 34 36.9	0 46.2	42 19.6	35 23.1
4824*	9 Lyræ ν^2		3 May 13	41 49.4	36.2	32 18 21.2	1 21.1	18 42 25.6	+32 19 42.3
4825	" . . .		3 May 15	41 49.9	36.2	32 18 23.2	1 20.7	42 26.1	19 43.9
4826	" . . .		3 Sept. 2	41 49.2	0 35.7	32 18 49.8	0 53.5	42 24.9	19 43.3
4827	" . . .		4 Sept. 14	(41)		32 19 0.9	0 47.2	(42)	19 48.1
4828	" . . .		4 Sept. 17	(41)		+32 19 1.2	0 46.9	(42)	19 48.1
4829*	34 Sagittarii σ		3 May 31	41 50.9	1 0.4	—26 32 57.9	1 7.1	18 42 51.3	—26 31 50.8
4830	" . . .		3 July 5	(41)		—26 32 48.4	1 6.7	(42)	31 41.7
4831	Lalande 35130 .	8	3 Aug. 20	42 7.7	0 43.9	+13 43 16.8	0 59.0	18 42 51.6	+13 44 15.8
4832*	35 Sagittarii ν^2		3 July 8	42 3.1	58.1	—22 55 29.2	1 7.1	18 43 1.2	—22 54 22.1
4833	" . . .		3 July 10	42 2.5	58.0	22 55 30.5	1 7.0	43 0.5	54 23.5
4834	" . . .		3 July 12	42 3.4	58.0	22 55 31.9	1 7.0	43 1.4	54 24.9
4835*	" . . .	6	4 July 14	42 6.0	54.0	—22 55 27.8	1 2.2	43 0.0	54 25.6
4836	10 Lyræ β		3 July 27	(42)		+33 7 21.7	1 0.9	18(43)	+33 8 22.6
4837	112 Herculis . .	5	3 April 28	43 1.7	42.1	21 10 18.0	1 23.6	18 43 43.8	+21 11 41.6
4838	" . . .		3 July 19	43 3.0	40.6	21 10 33.1	1 5.0	43 43.6	11 38.1
4839	" . . .		3 Sept. 6	43 2.6	41.0	21 10 40.3	0 56.9	43 43.6	11 37.2
4840	" . . .	6	4 Sept. 15	43 5.2	38.3	21 10 44.9	0 51.0	43 43.5	11 35.9
4841	62 Serpentis . .	6	4 Sept. 17	44 58.5	43.8	+ 6 21 36.9	0 57.4	18 45 42.3	+ 6 22 34.3
4842	37 Sagittarii ξ^2		3 July 12	44 50.8	57.3	—21 22 28.1	1 10.8	18 45 48.1	—21 21 17.3
4843	" . . .		3 Sept. 7	44 50.5	57.5	—21 22 20.8	1 11.2	45 48.0	21 9.6
4844	63 Serpentis θ^1		3 April 28	45 27.7	49.1	+ 3 55 59.0	1 22.5	18 46 16.7	+ 3 57 21.5
4845	" . . .		3 July 19	45 29.1	47.5	3 56 4.7	1 9.4	46 16.6	57 14.1
4846*	" . . .		3 July 27	45 28.8	47.5	3 56 7.9	1 8.5	46 16.3	57 16.4
4847	" . . .		4 Sept. 14	45 31.7	44.6	3 56 16.4	0 58.9	46 16.3	57 15.3
4848	Serpentis θ^2		4 Sept. 14	45 33.3	44.6	3 56 15.6	0 58.9	18 46 17.9	+ 3 57 14.5
4849	113 Herculis . .	6.5	3 Aug. 20	45 38.0	40.3	22 23 0.6	1 2.4	18 46 18.3	+22 24 3.0
4850	" . . .		3 Sept. 2	18 45 37.8	+ 40.4	+22 23 0.1	+ 1 0.8	18 46 18.2	+22 24 0.9

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4851	9 Aquilæ k	5.4	4 Oct. 9	18 45 32.6	+ 48.5	− 6 6 41.0	+ 1 1.9	18 46 21.3	− 6 5 39.1
4852	"	4.5	4 Oct. 14	45 32.7	48.6	6 6 43.7	1 1.9	46 21.3	5 41.8
4853	"	4.5	4 Oct. 15	45 32.4	48.6	6 6 42.4	1 1.9	46 21.0	5 40.5
4854	Anonyma	7	3 May 31	45 22.8	58.7	−22 48 1.6	1 12.4	18 46 21.5	−22 46 49.2
4855	11 Lyræ δ¹	6	3 May 13	46 11.1	33.8	+36 42 19.0	1 28.2	18 46 44.9	+36 43 47.2
4856	"	7	3 May 15	46 11.4	33.7	36 42 17.7	1 27.7	46 45.1	43 45.4
4857	Lalande 35329	7	4 Sept. 15	46 33.6	39.7	17 43 48.7	0 56.3	18 47 13.3	+17 44 45.0
4858	Lalande 35333	6	4 Sept. 15	46 37.0	39.6	17 50 55.7	0 56.5	18 47 16.6	+17 51 52.2
4859	12 Lyræ δ²		3 May 13	46 56.2	33.9	36 37 43.3	1 29.3	18 47 30.1	+36 39 12.6
4860	"		3 May 15	46 58.1	33.8	36 37 41.3	1 28.8	47 31.9	39 10.1
4861*	Lalande 35367,8	6.7	3 July 10	47 21.6	43.5	14 33 33.4	1 13.3	18 48 5.1	+14 34 46.7
4862	2388 Bradley	6	3 Aug. 20	48 56.4	35.3	32 38 10.4	1 5.5	18 49 31.7	+32 39 15.9
4863	10 Aquilæ		4 Sept. 17	48 54.8	41.2	+13 37 52.7	1 0.4	18 49 36.0	+13 38 53.1
4864	38 Sagittarii ζ		3 July 5	48 51.5	61.3	−30 10 11.9	1 16.7	18 49 52.8	−30 8 55.2
4865*	"		3 July 8	48 51.3	61.3	30 10 19.2	1 16.5	49 52.6	9 2.7
4866	"		3 Sept. 6	48 51.6	61.4	30 10 29.6	1 19.5	49 53.0	9 10.1
4867	"		3 Sept. 7	48 51.8	61.4	30 10 13.2	1 19.5	49 53.2	8 53.7
4868	"	3.4	4 Oct. 15	48 54.7	57.9	−30 10 26.3	1 14.5	49 52.6	9 11.8
4869	11 Aquilæ		3 Sept. 2	49 9.1	44.2	+13 20 56.0	1 7.5	18 49 53.3	+13 22 3.5
4870	"		4 Sept. 17	(49)		13 21 0.7	1 0.8	(49)	22 1.5
4871	13 Aquilæ ε		3 May 13	49 48.7	44.4	14 46 52.2	1 29.3	18 50 33.1	+14 48 21.5
4872	"		3 May 15	49 49.2	44.4	14 46 57.9	1 28.9	50 33.6	48 26.8
4873	"		3 July 10	49 49.2	43.4	14 47 6.7	1 16.8	50 32.6	48 23.5
4874	"		3 July 19	49 49.7	43.3	14 47 8.3	1 15.0	50 33.0	48 23.3
4875	"	3.4	4 Oct. 9	49 52.0	41.2	14 47 18.7	1 0.9	50 33.2	48 19.6
4876	"	3.4	4 Oct. 14	49 52.2	41.3	+14 47 20.3	1 1.0	50 33.5	48 21.3
4877	Lalande 35472,3	8	3 July 12	49 44.3	50.8	− 4 43 47.3	1 16.7	18 50 35.1	− 4 42 30.6
4878	12 Aquilæ i		4 Sept. 14	50 11.2	48.0	6 1 39.3	1 7.8	18 50 59.2	− 6 0 31.5
4879	"	4.5	4 Sept. 15	50 11.6	48.0	6 1 39.6	1 7.8	50 59.6	0 31.8
4880	"	4.5	4 Sept. 16	50 11.5	48.0	− 6 1 43.6	1 7.8	50 59.5	0 35.8
4881	14 Lyræ γ	3.4	3 Aug. 20	50 52.6	35.5	+32 24 12.3	1 6.8	18 51 28.1	+32 25 19.1
4882*	14 Aquilæ g	6	3 July 12	51 32.4	50.5	− 3 59 51.9	1 19.1	18 52 22.9	− 3 58 32.8
4883	39 Sagittarii o	3	3 April 28	51 42.6	59.3	22 2 29.0	1 22.9	18 52 41.9	−22 1 6.1
4884	"		3 July 5	51 43.5	57.6	22 2 22.8	1 20.1	52 41.1	1 2.7
4885	"		3 Sept. 6	51 43.8	57.7	22 2 34.8	1 20.9	52 41.5	1 13.9
4886	"		4 July 14	51 47.0	53.6	22 2 26.0	1 14.4	52 40.6	1 11.6
4887	15 Aquilæ h	6.7	3 July 12	53 33.9	50.7	4 20 19.4	1 22.0	18 54 24.6	− 4 18 57.4
4888	40 Sagittarii τ		3 May 31	53 26.3	61.0	27 58 5.6	1 22.5	18 54 27.3	−27 56 43.1
4889*	"		3 July 8	53 26.5	60.2	27 58 8.9	1 22.7	54 26.7	56 46.2
4890	"		3 Sept. 7	53 26.9	60.3	−27 58 4.5	1 25.1	54 27.2	56 39.4
4891	Lalande 35672	8	3 July 19	54 22.6	44.2	+12 41 9.1	1 21.5	18 55 6.8	+12 42 30.6
4892	Lalande 35674	7.8	3 July 10	54 26.3	40.9	20 57 32.0	1 23.3	18 55 7.2	+20 58 55.3
4893	"	6.7	3 Sept. 2	54 26.4	41.1	20 57 43.9	1 13.3	55 7.5	58 57.2
4894	17 Aquilæ ζ		3 July 19	55 28.8	43.9	13 33 10.0	1 22.9	18 56 12.7	+13 34 32.9
4895	"		3 Aug. 20	55 29.2	43.9	13 33 17.5	1 17.7	56 13.1	34 35.2
4896	Lalande 35758	8.9	3 July 12	56 8.7	48.9	0 19 11.4	1 25.5	18 56 57.6	+ 0 20 36.9
4897	18 Aquilæ		3 July 27	56 47.9	44.9	+10 45 0.9	1 23.7	18 57 32.8	+10 46 24.6
4898	41 Sagittarii π	5.6	3 May 13	56 53.4	58.5	−21 21 7.3	1 29.7	18 57 51.9	−21 19 37.6
4899	"		3 May 15	56 54.4	58.5	21 21 7.2	1 29.5	57 52.9	19 37.7
4900	"		3 May 31	56 53.7	58.0	21 20 59.0	1 28.7	57 51.7	19 30.3
4901	"		3 July 8	56 54.9	57.3	21 21 5.8	1 27.2	57 52.2	19 38.6
4902	"		3 Sept. 6	56 54.6	57.3	21 21 6.8	1 27.7	57 51.9	19 39.1
4903	"	5.6	4 Sept. 14	56 57.9	53.5	21 21 5.4	1 21.4	57 51.4	19 44.0
4904	"		4 Sept. 15	56 57.7	53.5	21 21 6.8	1 21.4	57 51.2	19 45.4
4905	"		4 Sept. 16	56 58.1	53.5	21 21 7.6	1 21.4	57 51.6	19 46.2
4906	"	4	4 Oct. 15	56 58.6	54.0	−21 21 11.9	1 21.7	57 52.6	19 50.2
4907	Lalande 35851	6.7	4 Sept. 17	58 19.1	40.2	+16 32 48.8	1 11.7	18 58 59.3	+16 34 0.5
4908	"		4 Oct. 14	58 18.3	40.7	16 32 45.0	1 11.3	58 59.0	33 56.3
4909	Lalande 35880	6	4 Sept. 17	59 2.9	40.2	16 31		18 59 43.1	+16 32
4910	"		4 Oct. 14	18 59 2.6	+ 40.7	+16 31 41.2	+ 1 12.2	18 59 43.3	+16 32 53.4

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4911*	17 Lyræ . . .	6	3 Aug. 20	18 59 15.9	+ 35.7	+32 10 19.8	+ 1 20.2	18 59 51.6	+32 11 40.0
4912*	18 Lyræ ι		3 July 10	59 36.5	33.6	35 46 14.5	1 30.8	19 0 10.1	+35 47 45.3
4913*	" . . .		3 July 19	59 36.2	33.5	+35 46 15.0	1 28.1	0 9.7	47 43.1
4914	767 Mayer . .		3 July 5	59 33.1	57.5	—21 59 55.9	1 30.8	19 0 30.6	—21 58 25.1
4915	" . . .	8	3 Sept. 6	59 33.3	57.5	22 0 5.5	1 31.5	0 30.8	58 34.0
4916*	" . . .	6	3 Sept. 7	18 59 33.3	57.6	21 59 54.6	1 31.4	0 30.9	58 23.2
4917	20 Aquilæ . .		3 May 13	19 0 56.3	53.3	8 17 19.9	1 38.9	19 1 49.6	— 8 15 41.0
4918*	" . . .		3 July 27	0 57.6	52.0	8 17 12.3	1 31.1	1 49.6	15 41.2
4919*	Bessel, W.91 .	5.6	3 May 15	1 10.6	54.9	12 37 53.6	1 37.8	19 2 5.5	—12 36 15.8
4920	" . . .	6	3 May 31	1 9.7	54.5	12 37 49.8	1 36.2	2 4.2	36 13.6
4921	Piazzi 19 . .	7.8	3 July 19	2 15.9	32.6	37 27 10.9	1 32.0	19 2 48.5	+37 28 42.9
4922	Lalande 36062 .	7.8	4 Oct. 1	2 24.4	43.4	+ 8 15 49.1	1 18.7	19 3 7.8	+ 8 17 7.8
4923	42 Sagittarii ψ	.	3 July 5	2 17.0	59.0	—25 36 39.9	1 34.4	19 3 16.0	—25 35 5.5
4924	" . . .		3 Sept. 6	2 17.2	59.0	—25 36 48.7	1 36.2	3 16.2	35 12.5
4925	21 Aquilæ . .	6	3 Aug. 20	2 49.4	48.3	+ 1 56 24.1	1 30.1	19 3 37.7	+ 1 57 54.2
4926	" . . .		3 Sept. 2	2 49.2	48.4	1 56 24.2	1 29.2	3 37.6	57 53.4
4927	" . . .	5.6	4 Sept. 14	2 52.0	45.2	1 56 30.8	1 21.6	3 37.2	57 52.4
4928	" . . .	6	4 Sept. 16	2 52.1	45.3	1 56 25.9	1 21.5	3 37.4	57 47.4
4929	" . . .	5	4 Sept. 17	2 52.2	45.3	1 56 32.1	1 21.4	3 37.5	57 53.5
4930	Flamsteed, B.2591	7	3 Sept. 7	3 20.6	41.1	21 12 15.8	1 25.0	19 4 1.7	+21 13 40.8
4931	Piazzi 27 . . .	6	4 Oct. 9	3 32.6	30.8	38 49 32.9	1 12.8	19 4 3.4	+38 50 45.7
4932*	Groombridge 2782	6.7	3 July 10	4 13.6	31.0	40 4 41.0	1 37.5	19 4 44.6	+40 6 18.5
4933*	" . . .	7.8	3 July 12	4 14.2	31.0	40 4 39.6	1 36.9	4 45.2	6 16.5
4934	Lalande 36146 .	6	3 May 13	4 10.2	46.0	11 21 0.9	1 48.6	19 4 56.2	+11 22 49.5
4935	Piazzi 30 . . .	7	3 July 19	4 42.5	31.7	39 3 50.7	1 35.4	19 5 14.2	+39 5 26.1
4936	" . . .		4 Oct. 9	4 44.5	30.7	+39 4 12.9	1 14.2	5 15.2	5 27.1
4937	Lalande 36173,4 .	6.7	3 May 15	4 30.1	53.6	— 9 3 24.2	1 43.4	19 5 23.7	— 9 1 40.8
4938	43 Sagittarii d	6	3 July 14	4 58.8	56.3	19 19 19.0	1 37.8	19 5 55.1	—19 17 41.2
4939	" . . .		3 Sept. 6	4 58.7	56.4	19 19 21.3	1 38.0	5 55.1	17 43.3
4940	" . . .	5	4 Oct. 15	5 2.5	53.1	19 19 20.1	1 31.4	5 55.6	17 48.7
4941	Lalande 36205 .	7	3 July 5	5 16.8	55.2	—16 20 5.0	1 38.6	19 6 12.0	—16 18 26.4
4942	Lalande 36207,8 .	6.7	3 Aug. 20	5 29.8	43.5	+14 43 9.1	1 31.6	19 6 13.3	+14 44 40.7
4943	22 Aquilæ . .		3 May 31	5 49.0	48.1	4 27 52.7	1 46.2	19 6 37.1	+ 4 29 38.9
4944	" . . .		3 July 27	5 50.0	47.3	4 27 59.1	1 36.6	6 37.3	29 35.7
4945*	1 Sagittæ . .		4 Sept. 15	6 1.8	38.5	20 52 4.0	1 20.7	19 6 40.3	+20 53 24.7
4946	" . . .		4 Sept. 16	6 1.0	38.5	20 52 4.1	1 20.6	6 39.5	53 24.7
4947	20 Lyræ η		3 July 10	6 24.5	31.9	38 46 57.4	1 40.6	19 6 56.4	+38 48 38.0
4948	" . . .		3 July 19	6 24.8	31.1	38 46 57.7	1 37.8	6 55.9	48 35.5
4949	" . . .		3 Sept. 7	6 24.5	32.4	38 47 8.5	1 26.3	6 56.9	48 34.8
4950	" . . .	5	4 Oct. 9	6 26.4	30.9	38 47 15.7	1 16.3	6 57.3	48 32.0
4951	" . . .	6	4 Oct. 14	6 26.3	31.0	38 47 13.4	1 16.4	6 57.3	48 29.8
4952	Lalande 36268 .	6	4 Oct. 1	6 36.2	41.3	+14 10 39.6	1 22.2	19 7 17.5	+14 12 1.8
4953	775 Mayer . .	7	3 Sept. 6	6 40.3	55.0	—15 53 53.4	1 39.2	19 7 35.3	—15 52 14.2
4954	1 Vulpeculæ .	6	3 Aug. 20	6 55.8	41.0	+21 1 15.2	1 32.4	19 7 36.8	+21 2 47.6
4955	" . . .		4 Sept. 14	6 58.1	38.4	21 1 25.1	1 22.0	7 36.5	2 47.1
4956	" . . .		4 Sept. 15	6 58.1	38.5	21 1 23.1	1 21.9	7 36.6	2 45.0
4957	2429 Bradley .	6	3 May 15	7 28.4	50.2	0 2 27.1	1 50.0	19 8 18.6	+ 0 4 17.1
4958	25 Aquilæ ω¹	5	3 May 13	7 39.9	46.1	11 12 45.3	1 53.6	19 8 26.0	+11 14 38.9
4959	" . . .	6.7	4 Oct. 9	7 43.4	42.5	+11 13 11.7	1 24.6	8 25.9	14 36.3
4960	24 Aquilæ . .	6	3 May 15	7 47.8	50.2	— 0 2 34.2	1 50.5	19 8 38.0	— 0 0 43.7
4961	776 Mayer . .	6.5	4 Sept. 17	7 44.1	53.9	—22 47 13.8	1 35.5	19 8 38.0	—22 45 38.3
4962	Lalande 36336 .	7	3 July 14	8 17.3	40.8	+21 26 9.9	1 41.8	19 8 58.1	+21 27 51.7
4963	Lalande 36348 .	8	4 Oct. 1	8 31.4	41.3	14 5 45.9	1 24.8	19 9 12.7	+14 7 10.7
4964*	Piazzi 64 . . .	6.7	3 May 31	8 34.0	46.4	9 14 9.6	1 51.0	19 9 20.4	+ 9 16 0.6
4965	21 Lyræ θ		3 July 10	8 52.9	32.6	37 45 22.1	1 44.1	19 9 25.5	+37 47 6.2
4966	" . . .		3 July 12	8 53.4	32.6	37 45 23.7	1 43.5	9 26.0	47 7.2
4967	" . . .		3 July 19	8 53.3	32.6	+37 45 24.8	1 41.4	9 25.9	47 6.2
4968	44 Sagittarii ρ¹	5	4 Oct. 15	9 10.9	52.6	—18 14 20.8	1 36.2	19 10 3.5	—18 12 44.6
4969	46 Sagittarii υ		3 July 5	9 21.0	55.2	16 20 40.6	1 44.0	19 10 16.2	—16 18 56.6
4970	27 Aquilæ d		3 July 27	19 9 26.8	+ 49.4	— 1 16 49.4	+ 1 41.9	19 10 16.2	— 1 15 7.5

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
4971	28 Aquilæ A	6	3 Aug. 20	19 9 34.6	+ 44.6	+11 59 13.2	+ 1 37.5	19 10 19.2	+12 0 50.7
4972	29 Aquilæ ω²	7.6	4 Oct. 9	9		11 8 52.2	1 27.5	19 10	+11 10 19.7
4973	Lalande 36409	7.8	3 Sept. 7	9 57.2	32.5	38 44 39.0	1 31.1	19 10 29.7	+38 46 10.1
4974	Lalande 36431,3	7	4 Sept. 28	10 23.3	36.4	26 52 43.3	1 24.0	19 10 59.7	+26 54 7.3
4975	"	7	4 Oct. 1	10 24.4	36.3	26 52 49.0	1 23.8	11 0.7	54 12.8
4976	"	7	4 Oct. 14	10 23.9	36.7	+26 52 40.4	1 23.8	11 0.6	54 4.2
4977	Lalande 36489	6	3 May 15	11 15.1	50.5	— 0 39 0.6	1 55.1	19 12 5.6	— 0 37 5.5
4978*	"	6	4 Sept. 16	11 18.0	46.1	— 0 38 49.3	1 32.9	12 4.1	37 16.4
4979	Lalande 36505	7	3 July 14	11 41.4	40.7	+21 48 14.9	1 46.6	19 12 22.1	+21 50 1.5
4980	"	7.8	3 July 19	11 41.7	40.6	+21 48 16.4	1 45.4	12 22.3	50 1.8
4981*	47 Sagittarii χ¹		3 Sept. 6	12 6.9	58.6	—24 54 53.4	1 49.0	19 13 5.5	—24 53 4.4
4982*	48 Sagittarii χ²		3 Sept. 6	12 14.1	58.5	—24 49 3.4	1 49.2	19 13 12.6	—24 47 14.2
4983	Lalande 36542	7.6	4 Oct. 9	12 33.6	43.0	+ 9 30 29.7	1 31.2	19 13 16.6	+ 9 32 0.9
4984	50 Sagittarii	6	4 Sept. 15	13 29.0	53.6	—22 11 22.6	1 42.3	19 14 22.6	—22 9 40.3
4985	Lalande 36610	7	3 July 29	13 53.2	44.9	+11 1 53.7	1 46.8	19 14 38.1	+11 3 40.5
4986	3 Vulpeculæ	6	3 May 31	13 59.6	39.6	25 51 16.2	2 1.7	19 14 39.2	+25 53 17.9
4987	"	6.5	4 Oct. 14	14 2.4	37.1	25 51 42.5	1 28.4	14 39.5	53 10.9
4988*	Rümker 7384	6	3 May 13	14 3.3	44.4	15 36 5.4	2 3.6	19 14 47.7	+15 38 9.0
4989	Lalande 36628,30	7	4 Sept. 28	14 31.0	33.6	33 7 8.4	1 27.8	19 15 4.6	+33 8 36.2
4990	"	7.6	4 Oct. 1	14 30.5	33.7	33 7 11.2	1 27.8	15 4.2	8 39.0
4991	Lalande 36629	7	3 July 14	14 23.0	41.5	19 51 17.3	1 50.2	19 15 4.5	+19 53 7.5
4992	"	6	3 Aug. 20	14 23.1	41.5	19 51 25.2	1 42.8	15 4.6	53 8.0
4993	2 Sagittæ		4 Oct. 15	14 42.2	40.7	16 31 53.0	1 31.7	19 15 22.9	+16 33 24.7
4994*	30 Aquilæ δ		3 April 28	14 34.8	49.9	2 41 36.4	2 8.2	19 15 24.7	+ 2 43 44.6
4995	"		3 May 15	14 36.4	49.4	2 41 41.5	2 5.1	15 25.8	43 46.6
4996	"		3 July 12	14 36.8	48.2	2 41 43.2	1 51.0	15 25.0	43 34.2
4997	"		3 July 19	14 36.6	48.1	2 41 47.3	1 49.4	15 24.7	43 36.7
4998	"		3 July 27	14 36.3	48.1	2 41 47.2	1 47.6	15 24.4	43 34.8
4999	"		4 Sept. 16	14 39.4	45.0	2 41 56.2	1 36.1	15 24.4	43 32.3
5000	31 Aquilæ b	6	4 Oct. 9	14 42.6	42.4	11 29 50.5	1 32.9	19 15 25.0	+11 31 23.4
5001	Lalande 36654,5	6.7	3 Sept. 7	15 5.4	33.2	37 10 33.1	1 38.4	19 15 38.6	+37 12 11.5
5002	3 Sagittæ		4 Oct. 15	15 5.2	40.7	16 32 56.4	1 32.1	19 15 45.9	+16 34 28.5
5003	Lalande 36663,4	7	4 Sept. 28	15 27.9	33.8	32 48 19.7	1 29.1	19 16 1.7	+32 49 48.8
5004	"	6.7	4 Oct. 1	15 27.4	33.8	32 48 29.5	1 28.8	16 1.2	49 58.3
5005	2457 Bradley	7	3 July 14	15 58.4	41.5	19 51 20.7	1 52.4	19 16 39.9	+19 53 13.1
5006	"	6	3 July 26	15 57.9	41.5	19 51 16.8	1 49.8	16 39.4	53 6.6
5007	"	6	3 Aug. 20	15 59.0	41.5	19 51 22.0	1 44.9	16 40.5	53 6.9
5008	"	7	4 Oct. 14	16 0.1	39.5	19 51 37.0	1 32.5	16 39.6	53 9.5
5009*	4 Vulpeculæ	6	3 May 13	16 0.3	42.9	19 23		19 16 43.2	+19 24
5010	"	6	4 Oct. 9	16 2.3	39.6	19 23 26.5	1 32.6	16 41.9	24 59.1
5011	3 Cygni	7	3 May 31	16 29.2	40.2	+24 31 45.6	2 4.8	19 17 9.4	+24 33 50.4
5012*	Lacaille 8120	6.7	3 Sept. 6	16 18.7	61.9	—32 31 10.0	1 54.0	19 17 20.6	—32 29 16.0
5013*	5 Vulpeculæ	6	3 May 13	16 46.5	42.8	+19 40 29.3	2 8.1	19 17 29.3	+19 42 37.4
5014	"		3 July 14	16 48.0	41.6	19 40 44.9	1 53.2	17 29.6	42 38.1
5015	"	6.5	3 July 26	16 47.6	41.5	19 40 43.5	1 50.8	17 29.1	42 34.3
5016	"		3 July 27	16 47.4	41.5	19 40 47.1	1 50.7	17 28.9	42 37.8
5017*	"	6.5	3 Aug. 20	16 48.2	41.6	19 40 49.6	1 46.0	17 29.8	42 35.6
5018*	"		4 Sept. 16	16 49.6	39.0	19 40 58.5	1 34.4	17 28.6	42 32.9
5019	"	6	4 Oct. 14	16 49.6	39.6	19 40 57.6	1 33.5	17 29.2	42 31.1
5020	2462 Bradley	6	4 Oct. 9	17 4.4	39.5	19 28 39.2	1 33.8	19 17 43.9	+19 30 13.0
5021	Lalande 36754	6.7	3 July 26	17 5.6	42.5	19 50 15.8	1 51.2	19 17 48.1	+19 52 27.0
5022	Lalande 36774	7	3 Sept. 7	17 38.6	33.7	36 49 46.6	1 41.9	19 18 12.3	+36 51 28.5
5023*	Piazzi 133	6	3 May 15	17 29.7	49.4	+ 2 30 7.7	2 4.5	19 18 19.1	+ 2 32 12.2
5024	Lalande 36791	6	3 July 5	17 43.4	51.8	— 7 28 24.4	1 55.5	19 18 35.2	— 7 26 28.9
5025	35 Aquilæ c	7	4 Sept. 15	18 8.6	45.3	+ 1 31 26.0	1 40.8	19 18 53.9	+ 1 33 6.8
5026	4 Cygni	6.7	4 Sept. 28	18 24.6	32.3	35 53 52.9	1 32.2	19 18 56.9	+35 55 25.1
5027	"	6.7	4 Oct. 1	18 24.7	32.4	35 53 59.0	1 32.0	18 57.1	55 31.0
5028	Piazzi 139	7	3 July 27	18 29.3	41.5	19 49 6.9	1 53.1	19 19 10.8	+19 51 0.0
5029	"	7	4 Oct. 14	18 31.2	39.5	19 49 22.3	1 35.6	19 10.7	50 57.9
5030*	Piazzi 144	6.7	3 May 15	19 19 19.3	+ 49.4	+ 2 28 0.7	+ 2 6.9	19 20 8.7	+ 2 30 7.6

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5031	36 Aquilæ e	6	3 July 12	19 19 21.7	+ 50.2	— 3 13 36.9	+ 1 57.1	19 20 11.9	— 3 11 39.8
5032	5 Cygni	6.7	3 July 19	19 41.5	37.6	+29 1 8.0	1 56.4	19 20 19.1	+29 3 4.4
5033	6 Vulpeculæ		3 May 13	19 42.3	40.9	24 13 58.2	2 13.3	19 20 23.2	+24 16 11.5
5034	"	6	3 May 31	19 42.8	40.4	24 14 4.2	2 9.2	20 23.2	16 13.4
5035	"	4.5	3 Aug. 20	19 43.0	39.7	24 14 18.4	1 49.3	20 22.7	16 7.7
5036	8 Vulpeculæ	7	3 May 13	19 55.2	40.9	24 19 46.9	2 13.8	19 20 36.1	—24 22 0.7
5037	"	7	3 May 31	19 55.7	40.4	24 19 54.8	2 9.3	20 36.1	22 4.1
5038	7 Vulpeculæ		3 July 26	19 55.5	41.5	19 50 38.9	1 55.1	19 20 37.0	+19 52 34.0
5039	"		3 July 27	19 55.5	41.5	19 50 40.8	1 54.9	20 37.0	52 35.7
5040	"	6	3 July 29	19 55.9	41.5	19 50 40.0	1 54.4	20 37.4	52 34.4
5041	"	6	4 Sept. 16	19 58.1	39.0	19 50 54.0	1 38.1	20 37.1	52 32.1
5042	"	7	4 Oct. 9	19 58.1	39.4	19 50 57.8	1 36.9	20 37.5	52 34.7
5043	"	6	4 Oct. 14	19 58.3	39.5	19 50 55.9	1 37.4	20 37.8	52 33.3
5044	Lalande 36927	7.8	4 Sept. 14	20 48.6	39.9	17 15 31.9	1 40.0	19 21 28.5	+17 17 11.9
5045	"	8	4 Sept. 15	20 48.8	40.0	17 15 26.9	1 40.0	21 28.8	17 6.9
5046	Piazzi 157	7	3 Sept. 7	21 42.1	35.1	35 50 36.4	1 45.3	19 22 17.2	+35 52 21.7
5047	"	7.8	4 Oct. 9	21 44.2	32.7	35 50 47.0	1 35.9	22 16.9	52 22.9
5048	Piazzi 158	6.7	3 July 10	21 31.1	46.6	7 2 32.5	2 0.6	22 17.7	+ 7 4 33.1
5049	6 Cygni β		3 April 28	21 58.5	40.0	27 30 38.3	2 19.9	19 22 38.5	+27 32 58.2
5050	"		4 Sept. 16	22 2.8	35.3	27 31 14.2	1 39.3	22 38.1	32 53.5
5051	"	3.4	4 Sept. 28	22 3.2	35.5	27 31 11.8	1 38.3	22 38.7	32 50.1
5052	"		4 Oct. 1	22 3.9	36.3	27 31 13.5	1 38.1	22 40.2	32 51.6
5053	Comp. β Cygni	6	4 Oct. 1	22 5.9	36.3	27 31 37.7	1 38.1	19 22 42.2	+27 33 15.8
5054	Piazzi 163	8	3 July 5	22 39.1	41.4	20 28 54.0	2 3.8	19 23 20.5	+20 30 57.8
5055	Piazzi 164	6.7	3 Sept. 7	22 58.1	34.4	35 47 5.0	1 49.3	19 23 32.5	+35 48 54.3
5056	"	6	4 Oct. 9	23 0.4	32.7	35 47 15.7	1 37.4	23 33.1	48 53.1
5057	Anonyma	6	3 July 26	23 4.7	42.6	17 17 43.7	1 59.4	19 23 47.3	+17 19 43.1
5058	"	6	3 July 27	23 5.0	42.6	17 17 44.2	1 59.2	23 47.6	19 43.4
5059	"	6.5	3 July 29	23 5.2	42.6	+17 17 43.2	1 58.8	23 47.8	19 42.0
5060	37 Aquilæ k		4 Oct. 14	23 15.7	49.9	—11 1 3.9	1 51.0	19 24 5.6	—10 59 12.9
5061	38 Aquilæ μ		3 July 10	23 32.4	46.6	+ 6 55 53.9	2 3.3	19 24 19.0	+ 6 57 57.2
5062	"		3 July 12	23 32.1	46.6	6 55 52.9	2 3.0	24 18.7	57 55.9
5063	"		3 July 14	23 32.4	46.5	6 55 54.1	2 2.6	24 18.9	57 56.7
5064	8 Cygni		3 May 31	23 44.6	35.8	33 59 56.3	2 16.5	19 24 20.4	+34 2 12.8
5065	"		3 Aug. 20	(23)	45.0	34 0 13.0	1 48.5	(24)	2 1.5
5066	Lalande 37085	6.7	4 Sept. 14	24 36.6	45.0	2 27 5.1	1 48.6	19 25 21.6	+ 2 28 53.7
5067*	"	7	4 Sept. 15	24 37.1	45.0	2 27 4.0	1 48.5	25 22.1	28 52.5
5068	Lalande 37106	7.8	3 July 5	25 5.5	39.3	25 36 3.7	2 7.4	19 25 44.8	+25 38 11.1
5069	9 Vulpeculæ	6	3 July 29	25 5.9	41.8	+19 18 44.7	2 1.4	19 25 47.7	+19 20 46.1
5070	41 Aquilæ ι		3 July 12	(25)		— 1 45 13.0	2 5.3	19(26)	— 1 43 7.7
5071	"		4 Sept. 16	25 35.5	46.4	1 45 1.5	1 50.8	26 21.9	43 10.7
5072	"		4 Sept. 17	25 35.8	46.4	1 44 57.4	1 50.8	26 22.2	43 6.6
5073	"	6	4 Oct. 1	25		1 44 56.9	1 50.5	26	43 6.4
5074	"	4.5	4 Oct. 9	25 36.2	46.7	1 44 59.7	1 49.4	26 22.9	43 10.3
5075	"	6	4 Oct. 14	25 35.6	46.8	1 45 0.9	1 50.4	26 22.4	43 10.5
5076	"	6	4 Oct. 15	25 34.6	46.8	— 1 45 0.8	1 50.7	26 21.4	43 10.1
5077	Groombridge 2870	7	3 Sept. 7	26 5.1	33.1	+38 18 7.9	1 51.5	19 26 38.2	+38 19 59.4
5078	42 Aquilæ	6	4 Oct. 14	26 22.4	47.9	— 5 6 50.8	1 52.8	19 27 10.3	— 5 4 58.0
5079	"	6	4 Oct. 15	(26)		— 5 6 53.8	1 52.7	(27)	5 1.1
5080	Lalande 37188	6.7	3 May 15	26 49.2	36.7	+33 19 24.7	2 24.6	19 27 25.9	+33 21 49.3
5081*	Bessel, W.928	7	3 July 27	26 53.5	40.6	22 7 2.3	2 4.3	19 27 34.1	+22 9 6.6
5082	"	6.7	3 July 29	26 54.2	40.6	22 7 0.9	2 3.8	27 34.8	9 4.7
5083	Lalande 37206	7.8	3 May 31	27 11.9	31.5	+41 27 21.4	2 22.4	19 27 43.4	+41 29 43.8
5084	Piazzi 202	7	4 Sept. 17	27 21.7	45.8	— 0 7 37.6	1 52.5	19 28 7.5	— 0 5 45.1
5085	4 Sagittæ ε		3 July 9	27 30.8	43.3	+15 59 13.0	2 9.2	19 28 14.1	+16 1 22.2
5086	"		3 July 26	27 31.0	43.1	15 59 13.8	2 5.5	28 14.1	1 19.3
5087	Flamsteed, B.2664	6	4 Oct. 14	27		41 57 12.7	1 42.2	19 28	+41 58 54.9
5088	Lalande 37262	7	4 Sept. 14	28 2.8	44.8	2 54 22.3	1 52.6	19 28 47.6	+ 2 56 14.9
5089	"	7	4 Sept. 15	28 2.8	44.5	2 54 25.7	1 54.0	28 47.3	56 19.7
5090	"	7	4 Sept. 28	19 28 2.6	+ 45.0	+ 2 54 21.8	+ 1 52.2	19 28 47.6	+ 2 56 14.0

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5091*	Lalande 37262 .	7	4 Oct. 9	19 28 2.3	+ 45.2	+ 2 54 22.9	+ 1 52.3	19 28 47.5	+ 2 56 15.2
5092	44 Aquilæ σ		3 July 10	28 31.9	47.3	4 54 58.7	2 9.8	19 29 19.2	+ 4 57 8.5
5093	" . . .		3 July 12	28 32.0	47.3	4 55 0.9	2 9.8	29 19.3	57 10.7
5094	" . . .		3 July 14	28 32.2	47.3	4 55 0.1	2 9.9	29 19.5	57 10.0
5095	Lalande 37310 .	6.7	3 July 5	28 54.1	41.6	20 18 18.3	2 12.3	19 29 35.6	+20 20 30.6
5096	" . . .	8	3 July 8	28 53.9	41.6	20 18 14.8	2 11.7	29 35.5	20 26.5
5097	" . . .	6.7	3 July 19	28 53.5	41.5	20 18 19.1	2 8.8	29 35.0	20 27.9
5098	Groombridge 2889	7	3 Sept. 7	29 21.5	33.2	37 54 35.1	1 57.6	19 29 54.7	+37 56 32.7
5099	" . . .	6	4 Oct. 14	29		37 54 47.7	1 44.8	29	56 32.5
5100	Lalande 37330,1	7	3 July 9	29 39.6	43.2	+16 5 9.1	2 18.5	19 30 22.8	+16 7 27.6
5101	45 Aquilæ . .		4 Sept. 14	29 38.1	46.1	− 1 6 22.7	1 55.6	19 30 24.2	− 1 4 27.1
5102	" . . .	6	4 Sept. 16	29 39.0	46.2	1 6 23.0	1 55.5	30 25.2	4 27.5
5103	" . . .		4 Sept. 17	29 39.3	46.2	1 6 19.3	1 55.5	30 25.5	4 23.8
5104	" . . .	6.7	4 Oct. 1	29 38.8	46.4	1 6 15.9	1 54.9	30 25.2	4 21.0
5105	" . . .	6	4 Oct. 15	29 38.6	46.6	− 1 6 23.8	1 55.4	30 25.2	4 28.4
5106	Groombridge 2893	6	3 May 31	29 56.6	29.8	+44 13 4.6	2 26.5	19 30 26.4	+44 15 31.1
5107	" . . .	6	4 Oct. 9	29 57.9	28.2	44 13 43.3	1 44.5	30 26.1	15 27.8
5108	13 Cygni θ	4	3 July 27	30 39.7	24.6	+49 43 38.3	2 9.8	19 31 4.3	+49 45 48.1
5109	55 Sagittarii e^2		3 Sept. 6	30 9.4	54.9	−16 36 54.2	2 10.3	19 31 4.3	−16 34 43.9
5110	5 Sagittæ α		3 May 15	30 26.5	43.9	+17 31 26.1	2 26.1	19 31 10.4	+17 33 52.2
5111	" . . .		3 July 19	30 26.4	42.6	17 31 38.2	2 10.8	31 9.0	33 49.0
5112	12 Cygni φ		3 July 26	30 50.9	37.4	29 39 51.1	2 9.8	19 31 28.3	+29 42 0.9
5113	" . . .		3 July 29	30 52.0	37.4	29 39 54.7	2 8.9	31 29.4	42 3.6
5114	" . . .		3 Aug. 20	30 51.6	37.4	29 39 57.2	2 3.7	31 29.0	42 0.9
5115*	Lalande 37387 .	7	3 July 5	31 2.4	41.8	19 59 10.2	2 15.0	19 31 44.2	+20 1 25.2
5116	" . . .	8.9	3 July 8	31 2.1	41.7	19 59 9.1	2 14.4	31 43.8	1 23.5
5117*	6 Sagittæ β		3 July 9	31 21.2	42.9	16 59 4.9	2 14.4	19 32 4.1	+17 1 19.3
5118	" . . .		3 July 19	31 21.2	42.8	16 59 7.3	2 12.1	32 4.0	1 19.4
5119*	Groombridge 2897	7	3 May 31	31 56.8	26.3	48 47 3.9	2 29.9	19 32 23.1	+48 49 33.8
5120	46 Aquilæ . .	6.7	4 Sept. 16	32 7.0	41.9	11 41 56.5	1 55.2	19 32 48.9	+11 43 51.7
5121	14 Cygni . . .		3 Sept. 7	32 25.0	30.8	42 19 41.9	2 1.1	19 32 55.8	+42 21 43.0
5122	" . . .	6	4 Oct. 9	32 26.8	29.4	42 19 53.9	1 47.8	32 56.2	21 41.7
5123	" . . .	6	4 Oct. 14	32 26.4	29.6	42 19 52.6	1 47.5	32 56.0	21 40.1
5124	" . . .	6	4 Oct. 15	32 26.2	29.6	42 19 56.5	1 47.5	32 55.8	21 44.0
5125	Piazzi 241 . .	7.8	4 Sept. 28	32 22.3	43.4	7 53 5.2	1 56.1	19 33 5.7	+ 7 55 1.3
5126	47 Aquilæ χ	6.5	3 July 10	32 23.5	45.0	11 19 37.9	2 15.3	19 33 8.5	+11 21 53.2
5127	" . . .		3 July 12	32 24.1	45.0	11 19 38.8	2 14.9	33 9.1	21 53.7
5128	" . . .		4 Sept. 14	32 27.0	41.9	11 19 58.6	1 56.0	33 8.9	21 54.6
5129	" . . .		4 Sept. 17	32 26.7	42.1	11 20 0.8	1 55.7	33 8.8	21 56.5
5130	Lalande 37483 .	7.8	3 July 29	33 25.8	36.0	32 55 7.2	2 12.2	19 34 1.8	+32 37 19.4
5131	Lalande 37486,7	6.7	3 Sept. 7	33 41.4	30.6	42 35 2.1	2 2.7	19 34 12.0	+42 37 4.8
5132	" . . .	7	4 Oct. 9	33 43.8	29.3	42 35 13.7	1 49.3	34 13.1	37 3.0
5133	" . . .	7	4 Oct. 14	33 43.2	29.4	42 35 14.3	1 49.2	34 12.6	37 3.5
5134	" . . .	6	4 Oct. 15	33 43.0	29.4	42 35 11.5	1 49.1	34 12.4	37 0.6
5135	Lalande 37488,9	7	3 Aug. 20	33 33.5	40.7	22 21 7.1	2 8.1	19 34 14.2	+22 23 15.2
5136	Lalande 37497 .	7.8	4 Sept. 15	33 43.7	42.8	9 1 0.2	1 57.9	19 34 26.5	+ 9 2 58.1
5137	Groombridge 2909	6	3 May 31	34 9.8	29.4	45 0 50.0	2 32.4	19 34 39.2	+45 3 22.4
5138*	Groombridge 2910	7	4 Oct. 16	34 15.8	31.3	39 31 44.3	1 50.3	19 34 47.1	+39 33 34.6
5139*	Lalande 37521,2	7.8	3 July 5	34 8.9	41.0	21 59 22.6	2 19.2	19 34 49.9	+22 1 41.8
5140	" . . .	8.9	3 July 8	34 8.6	40.9	21 59 23.6	2 18.6	34 49.5	1 42.2
5141	" . . .	8	3 July 9	34 9.4	40.9	21 59 21.8	2 18.3	34 50.3	1 40.1
5142	" . . .	7.8	3 July 10	34 8.7	40.9	21 59 23.2	2 18.1	34 49.6	1 41.3
5143	Lalande 37527 .	7	3 July 29	34 26.7	36.3	31 55 25.7	2 13.6	19 35 3.0	+31 57 39.3
5144	Johnson 4420 .	6	4 Oct. 16	34 36.8	31.1	39 45 28.4	1 50.6	19 35 7.9	+39 47 19.0
5145	48 Aquilæ ψ	6.7	3 July 19	34 31.8	44.4	12 47 41.1	2 16.2	19 35 16.2	+12 49 57.3
5146*	" . . .		3 July 26	34 31.7	44.4	12 47 40.7	2 14.8	35 16.1	49 55.5
5147*	10 Vulpeculæ .	6	3 July 14	34 44.0	39.5	25 15 49.4	2 18.0	19 35 23.5	+25 18 7.4
5148*	49 Aquilæ υ		3 July 27	35 9.8	46.4	7 6 4.4	2 14.8	19 35 56.2	+ 7 8 19.2
5149	" . . .	6	4 Sept. 16	35 12.4	43.5	7 6 15.7	2 0.0	35 55.9	8 15.7
5150	" . . .	6	4 Sept. 17	19 35 12.7	+ 43.5	+ 7 6 18.6	+2 0.0	19 35 56.2	+ 7 8 18.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5151	Groombridge 2920	7	4 Oct. 15	19 35 36.3	+ 31.9	+38 10 14.9	+ 1 52.0	19 36 8.2	+38 12 6.9
5152	Lalande 37584 .	7.8	3 July 29	35 44.2	35.5	33 39 21.5	2 15.5	19 36 19.7	+33 41 37.0
5153	50 Aquilæ γ		3 April 28	35 57.5	47.3	10 5 36.0	2 34.1	19 36 44.8	+10 8 10.1
5154	" . . .		3 May 13	35 58.6	46.8	10 5 33.4	2 31.8	36 45.4	8 5.2
5155	" . . .		3 May 15	36 0.1	46.8	10 5 42.2	2 31.4	36 46.9	8 13.6
5156	" . . .		3 July 12	35 59.2	45.5	10 5 46.0	2 19.8	36 44.7	8 5.8
5157	" . . .		3 July 19	35 58.7	45.4	10 5 48.8	2 18.2	36 44.1	8 7.0
5158	" . . .		4 Sept. 7	36 2.4	42.4	10 6 3.5	2 1.1	36 46.8	8 4.6
5159	" . . .		4 Sept. 14	(36)		10 6 4.1	2 0.5	(36)	8 4.6
5160*	" . . .		4 Sept. 17	(36)		10 6 7.3	2 0.3	(36)	8 7.6
5161*	" . . .		4 Oct. 1	36 2.2	42.7	10 6 9.6	1 59.5	36 44.9	8 9.1
5162	15 Cygni . . .	6	4 Oct. 9	36 31.7	32.4	36 50 46.3	1 53.6	19 37 4.1	+36 52 39.9
5163	" . . .	6	4 Oct. 16	36 31.2	32.6	36 50 47.4	1 53.4	37 3.8	52 40.8
5164	Groombridge 2925	6	3 May 31	36 32.6	32.0	41 15 22.6	2 35.1	19 37 4.6	+41 17 57.7
5165	Lalande 37627 .	10	3 July 10	36 45.9	40.3	23 34 45.0	2 21.8	19 37 26.2	+23 37 6.8
5166	Lalande 37655 .	8	3 July 9	37 35.9	39.9	24 36 43.4	2 23.2	19 38 15.8	+24 39 6.6
5167	Piazzi 278 .	7	3 July 29	37 49.2	35.1	34 29 39.6	2 18.3	19 38 24.3	+34 31 57.9
5168	18 Cygni δ		3 April 28	38 12.8	31.0	44 36 7.0	2 45.1	19 38 43.9	+44 38 52.1
5169	" . . .		3 May 13	38 13.0	30.4	44 36 8.8	2 42.4	38 43.4	38 51.2
5170	" . . .		3 May 15	38 14.2	30.4	44 36 11.1	2 42.0	38 44.6	38 53.1
5171	17 Cygni χ	5	4 Oct. 16	38 15.0	34.2	33 14 23.3	1 56.2	19 38 49.2	+33 16 19.5
5172	Lalande 37695 .	7	4 Sept. 16	38 17.4	42.5	10 10 15.3	2 3.1	19 38 59.9	+10 12 18.4
5173	" . . .	7	4 Sept. 17	38 17.5	42.5	10 10 21.4	2 3.0	39 0.0	12 24.4
5174	Lalande 37710–3 .	7	3 July 9	38 46.0	39.8	24 51 31.5	2 24.8	19 39 25.8	+24 53 56.3
5175	" . . .	7.8	3 July 10	38 45.2	39.8	24 51 29.8	2 24.5	39 25.0	53 54.3
5176	" . . .	6.7	4 Oct. 15	38 47.4	37.8	24 51 52.2	1 58.7	39 25.2	53 50.9
5177	Lalande 37717 .	7.8	3 July 26	38 42.6	46.2	7 44 49.5	2 20.2	19 39 28.8	+ 7 47 9.7
5178	" . . .	7.8	3 July 27	(38)		7 44 49.5	2 17.7	(39)	47 7.2
5179	Lalande 37753 .	6.7	3 May 31	39 47.8	34.2	37 52 31.3	2 39.0	19 40 22.0	+37 55 10.3
5180	" . . .	6.7	4 Oct. 9	39 50.5	32.0	37 53 11.6	1 57.3	40 22.5	55 8.9
5181	53 Aquilæ α		3 April 28	40 12.7	48.0	8 18 18.9	2 39.3	19 41 0.7	+ 8 20 58.2
5182	" . . .		3 May 13	40 13.2	47.5	8 18 15.4	2 36.8	41 0.7	20 52.2
5183	" . . .		3 May 15	40 14.3	47.4	8 18 25.0	2 36.5	41 1.7	21 0.5
5184	" . . .		3 July 5	40 14.4	46.3	8 18 30.4	2 26.3	41 0.7	20 56.7
5185	" . . .		3 July 8	40 14.5	46.2	8 18 27.6	2 25.8	41 0.7	20 53.4
5186	" . . .		3 July 9	40 14.8	46.2	8 18 29.0	2 25.7	41 1.0	20 55.7
5187	" . . .		3 July 10	40 14.2	46.2	8 18 30.0	2 25.6	41 0.4	20 55.6
5188	" . . .		3 July 12	40 15.1	46.2	8 18 29.9	2 25.3	41 1.3	20 55.2
5189	" . . .		3 July 14	40 14.5	46.2	8 18 30.4	2 24.9	41 0.7	20 55.3
5190	" . . .		3 July 19	40 14.7	46.1	8 18 32.9	2 23.7	41 0.8	20 56.6
5191	" . . .		3 July 26	40 14.6	46.1	8 18 30.5	2 22.4	41 0.7	20 52.9
5192	" . . .		3 July 27	40 14.8	46.0	8 18 34.2	2 22.2	41 0.8	20 56.4
5193	" . . .		3 July 29	40 14.7	46.0	8 18 34.6	2 21.9	41 0.7	20 56.5
5194	" . . .		3 Aug. 20	40 15.0	46.0	8 18 35.0	2 16.7	41 1.0	20 51.7
5195	" . . .		4 July 14	40 18.1	42.9	8 18 40.3	2 14.4	41 1.0	20 54.7
5196	" . . .		4 Sept. 7	40 18.1	43.0	8 18 45.0	2 6.6	41 1.1	20 51.6
5197	" . . .		4 Sept. 14	40 17.9	43.1	8 18 46.8	2 5.9	41 1.0	20 52.7
5198	" . . .		4 Sept. 15	40 17.9	43.2	8 18 46.2	2 5.8	40 1.1	20 52.0
5199	" . . .		4 Sept. 16	40 17.6	43.2	8 18 48.0	2 5.7	41 0.8	20 53.7
5200	" . . .		4 Sept. 17	40 17.9	43.2	8 18 50.0	2 5.7	41 1.1	20 55.7
5201	" . . .		4 Oct. 1	40 18.1	42.3	8 18 51.5	2 5.1	41 0.4	20 56.6
5202	" . . .	1.2	4 Oct. 16	40 17.2	43.6	8 18 49.4	2 5.0	41 0.8	20 54.4
5203	" . . .	1.2	4 Nov. 17	40 16.7	44.0	8 18 47.9	2 6.8	41 0.7	20 54.7
5204	" . . .	1.2	4 Nov. 28	40 16.8	44.0	8 18 43.1	2 7.7	41 0.8	20 50.8
5205	2529 Bradley .	7	3 May 31	41 48.7	34.1	38 10 9.8	2 41.8	19 42 22.8	+38 12 51.6
5206	12 Vulpeculæ .	7.6	4 Sept. 16	41		22 4 34.3	2 4.4	19 42 .	+22 6 38.7
5207	" . . .	6.7	4 Sept. 17	41 48.7	38.4	22 4 34.6	2 4.4	42 27.1	6 39.0
5208	" . . .	6	4 Oct. 15	41 48.2	38.9	22 4 30.0	2 3.0	42 27.1	6 33.0
5209	" . . .	6	4 Oct. 16	41 48.1	38.9	22 4 34.2	2 3.0	42 27.0	6 37.2
5210	Lalande 37855 .	8.9	3 July 12	19 42 38.0	+ 47.7	+ 3 51 13.5	+ 2 27.8	19 43 25.7	+ 3 53 41.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ' "	' "	h m s	° ' "
5211	Lalande 37855 .	7	3 July 19	19 42 37.6	+ 47.7	+ 3 51 12.0	+ 2 26.6	19 43 25.3	+ 3 53 38.8
5212	" . . .	7.8	3 July 27	42 37.0	47.6	3 51 10.5	2 25.5	43 24.6	53 36.0
5213	" . . .	7.8	3 July 29	42 37.6	47.6	3 51 11.7	2 25.2	43 25.2	53 36.9
5214	9 Sagittæ . . .	7	4 Sept. 14	42 46.8	39.8	18 7 52.3	2 6.8	19 43 26.6	+18 9 59.1
5215	19 Cygni . . .	6	3 May 31	42 54.6	34.2	+38 10 9.9	2 43.2	19 43 28.8	+38 12 53.1
5216	58 Aquilæ . .		3 July 14	43 41.1	49.1	— 0 16 46.3	2 28.6	19 44 30.2	— 0 14 17.7
5217	Anonyma . . .	6	3 July 9	44 7.6	46.8	+ 6 35		19 44 54.4	+ 6 37
5218	" . . .	6.7	3 July 10	44 7.1	46.8	6 35 1.6	2 30.8	44 53.9	37 32.4
5219	13 Vulpeculæ .	6	4 Sept. 16	44 18.9	37.8	23 31 52.5	2 7.2	19 44 56.7	+23 33 59.7
5220	" . . .		4 Sept. 17	44 19.8	37.9	23 31 52.3	2 7.1	44 57.7	33 59.4
5221	" . . .	6	4 Oct. 15	44 18.2	38.4	23 31 50.9	2 5.5	44 56.6	33 56.4
5222	60 Aquilæ β		3 April 28	44 40.3	48.9	5 52 32.9	2 44.2	19 45 29.2	+ 5 55 17.1
5223	" . . .		3 May 13	44 41.0	48.4	5 52 26.4	2 41.9	45 29.4	55 8.3
5224	" . . .		3 May 15	44 42.1	48.4	5 52 33.2	2 41.7	45 30.5	55 14.9
5225	" . . .		3 July 5	44 42.0	47.1	5 52 39.5	2 31.8	45 29.1	55 11.3
5226*	" . . .		3 July 8	44 42.0	47.1	5 52 38.3	2 31.3	45 29.1	55 9.6
5227	" . . .		3 July 9	44 42.5	47.1	5 52 37.0	2 31.1	45 29.6	55 8.1
5228	" . . .		3 July 10	(44)		5 52 36.5	2 30.9	(45)	55 7.4
5229	" . . .		3 July 19	44 42.2	47.0	5 52 45.0	2 29.3	45 29.2	55 14.3
5230	" . . .		3 July 26	44 42.2	46.9	5 52 41.3	2 28.1	45 29.1	55 9.4
5231	" . . .	4.5	4 Sept. 14	44		5 52 54.1	2 13.1	45	55 7.1
5232	" . . .	3.4	4 Nov. 28	44 44.5	44.8	5 52 55.7	2 10.3	45 29.3	55 6.0
5233	2541 Bradley .	6.7	3 July 27	45 21.3	40.3	23 45 47.1	2 28.8	19 46 1.6	+23 48 15.9
5234	" . . .	6.7	3 July 29	45 21.4	40.3	23 45 48.2	2 28.3	46 1.7	48 16.5
5235	" . . .	6.5	4 Sept. 16	45 23.4	37.8	23 46 2.7	2 8.4	46 1.2	48 11.1
5236	" . . .	6	4 Sept. 17	45 24.2	37.8	23 46 7.1	2 8.4	46 2.0	48 15.5
5237	" . . .	6.7	4 Oct. 15	45 23.1	38.3	23 46 5.1	2 6.8	46 1.4	48 11.9
5238	" . . .	6	4 Oct. 16	45 23.3	38.3	23 46 5.1	2 6.7	46 1.6	48 11.8
5239	Lalande 37965,6	7	4 Sept. 7	45 28.5	38.4	+21 52 35.7	2 10.1	19 46 6.9	+21 54 45.8
5240	Lalande 38017 .	8	3 July 12	46 10.1	49.1	— 0 12 48.7	2 32.1	19 46 59.2	— 0 10 16.6
5241	" . . .	7	3 July 23	46 10.2	49.0	— 0 12 51.2	2 30.6	46 59.1	10 20.6
5242	Lalande 38039 .	6	3 May 31	46 54.6	35.3	+36 25 43.2	2 48.1	19 47 29.9	+36 28 31.3
5243	Lalande 38068 .	7	4 Sept. 7	47 39.1	37.9	23 12 43.2	2 12.5	19 48 17.0	+23 14 55.7
5244*	11 Sagittæ . .	7	3 July 8	47 57.4	43.4	16 12 55.2	2 36.3	19 48 40.8	+16 15 31.5
5245	" . . .	6	3 July 9	47 57.6	43.4	16 12 59.6	2 36.2	48 41.0	15 35.8
5246	" . . .		3 July 10	47 57.0	43.4	16 12 58.0	2 36.0	48 40.4	15 34.0
5247	" . . .	6	4 Sept. 14	47 59.7	40.4	16 13 19.8	2 13.7	48 40.1	15 33.5
5248	21 Cygni η	4.5	3 July 29	48 13.1	35.4	34 31 4.2	2 32.0	19 48 48.5	+34 33 36.2
5249	" . . .	5	4 Sept. 17	48 15.5	33.4	34 31 25.1	2 9.9	48 48.9	33 35.0
5250	2546 Bradley .	7	3 July 10	48 24.2	43.5	15 55 13.2	2 36.5	19 49 7.7	+15 57 49.7
5251	Santini 1381 . .	6	3 July 23	48 23.5	48.6	0 47 56.7	2 33.4	19 49 12.1	+ 0 50 30.1
5252	Lalande 38127,8 .	8	4 Sept. 17	49 9.1	33.4	34 28 4.9	2 11.0	19 49 42.5	+34 30 15.9
5253	Lalande 38129,30	7	4 Oct. 1	49 0.9	42.4	10 44 3.8	2 14.9	19 49 43.3	+10 46 18.7
5254	12 Sagittæ γ		3 July 14	49 9.1	42.4	18 54 52.7	2 36.6	19 49 51.5	+18 57 29.3
5255	" . . .		3 July 26	49 9.5	42.2	18 54 51.8	2 33.7	49 51.7	57 25.5
5256	" . . .		3 July 27	49 9.7	42.2	18 54 54.5	2 33.5	49 51.9	57 28.0
5257*	" . . .	5	4 Sept. 15	49 11.6	39.6	18 55 9.6	2 14.1	49 51.2	57 23.7
5258*	" . . .	5	4 Sept. 16	49 12.2	39.6	18 55 9.1	2 14.0	49 51.8	57 23.1
5259*	22 Cygni . . .	6.7	3 May 31	49 44.8	34.6	37 52 44.9	2 52.2	19 50 19.4	+37 55 37.1
5260	14 Vulpeculæ .		4 Sept. 14	49 57.3	38.3	22 31 39.6	2 14.4	19 50 35.6	+22 33 54.0
5261	" . . .	6.7	4 Oct. 15	49 56.8	38.8	22 31 39.1	2 12.5	50 35.6	33 51.6
5262	Lalande 38177 .	6.7	4 Sept. 7	50 7.4	35.1	30 24 43.3	2 14.3	19 50 42.5	+30 26 57.6
5263	13 Sagittæ χ		3 July 5	50 18.3	43.3	16 56 10.6	2 40.1	19 51 1.6	+16 58 50.7
5264	" . . .	6.7	3 July 8	50 18.1	43.2	16 56 5.9	2 39.5	51 1.3	58 45.4
5265	" . . .		3 July 9	50 18.0	43.2	16 56 8.5	2 39.3	51 1.2	58 47.8
5266	Piazzi 362 .	8	3 July 9	50 23.7	43.2	17 1 44.7	2 39.4	19 51 6.9	+17 4 24.1
5267	Lalande 38202 .	7.8	3 July 29	50 47.4	33.9	+37 31 38.3	2 35.3	19 51 21.3	+37 34 13.6
5268	Piazzi 365 . .	9.10	3 July 23	50 33.7	49.2	— 0 47 5.9	2 36.2	19 51 22.9	— 0 44 29.7
5269	Lalande 38230 .	8	4 Oct. 1	51 11.6	41.5	+13 56 33.2	2 16.4	19 51 53.1	+13 58 49.6
5270	Lalande 38233 .	8	4 Sept. 16	19 51 17.5	+ 37.2	+25 36 34.5	+ 2 15.1	19 51 54.7	+25 38 49.6

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5271	25 Cygni . . .		3 July 26	19 52 0.5	+ 34.5	+36 27 27.2	+ 2 37.8	19 52 35.0	+36 30 5.0
5272	15 Vulpeculæ .		3 July 14	52 12.7	39.1	27 9 52.2	2 41.1	19 52 51.8	+27 12 33.3
5273	" . . .		3 July 27	52 12.1	39.0	27 9 58.8	2 37.7	52 51.1	12 36.5
5274	Groombridge 3001	6	3 May 31	52 33.4	30.2	45 10 57.2	2 56.9	19 53 3.6	+45 13 54.1
5275	2559 Bradley .	6	4 Sept. 17	52 38.5	37.7	24 12 56.0	2 16.9	19 53 16.2	+24 15 12.9
5276	" . . .	6	4 Oct. 15	52 37.9	38.2	24 12 56.0	2 15.0	53 16.1	15 11.0
5277*	Lalande 38284 .	6	4 Sept. 15	52 37.0	42.5	10(20)		19 53 19.5	+10(22)
5278	Lalande 38292 .	7	4 Oct. 1	52 49.5	41.5	13 59 40.6	2 18.2	19 53 31.0	+14 1 58.8
5279	16 Vulpeculæ .		3 July 12	52 52.1	40.3	24 20 26.0	2 42.3	19 53 32.4	+24 23 8.3
5280	" . . .	5	4 Sept. 15	52 54.3	37.6	24 20 50.8	2 17.4	53 31.9	23 8.2
5281	" . . .	6	4 Sept. 17	52 54.5	37.7	24 20 54.5	2 17.2	53 32.2	23 11.7
5282*	" . . .	5.6	4 Oct. 15	52 54.5	38.2	24 20 53.2	2 15.3	53 32.7	23 8.5
5283	Lalande 38319 .	7.8	3 July 5	53 19.8	43.0	17 42 2.2	2 44.2	19 54 2.8	+17 44 46.4
5284	" . . .	7.8	3 July 8	53 20.1	43.0	17 42 1.0	2 43.5	54 3.1	44 44.5
5285	" . . .	7.8	3 July 9	53 20.5	43.0	17 42 3.0	2 43.2	54 3.5	44 46.2
5286	" . . .	7.8	3 July 10	53 19.6	43.0	17 42 1.7	2 43.0	54 2.6	44 44.7
5287	Lalande 38328	7	3 July 5	53 34.9	43.0	17 54 15.6	2 44.4	19 54 17.9	+17 57 0.0
5288	" . . .	7	3 July 8	53 35.4	42.9	17 54 19.6	2 43.7	54 18.3	57 3.3
5289	" . . .	7.8	3 July 9	53 35.6	42.9	17 59 20.8	2 43.4	54 18.5	57 4.2
5290	" . . .	7	3 July 10	53 34.2	42.9	17 54 19.4	2 43.2	54 17.1	57 2.6
5291*	" . . .	7	4 Oct. 9	53 37.9	40.4	17 54 46.6	2 18.0	54 18.3	57 4.6
5292	14 Sagittæ γ		3 July 23	53 37.5	43.6	15 26 3.7	2 40.3	19 54 21.1	+15 28 44.0
5293	63 Aquilæ τ		4 Sept. 14	53 38.3	43.6	6 41 0.7	2 22.0	19 54 21.9	+ 6 43 22.7
5294	2567 Bradley .	7	3 July 29	54 11.7	43.2	16(32)		19 54 54.9	+16(34)
5295	Lalande 38368 .	7.8	4 Sept. 16	54 22.6	34.9	31 22 2.0	2 17.8	19 54 57.5	+31 24 19.8
5296	" . . .	7	4 Sept. 17	54 22.2	34.9	31 22 6.6	2 17.6	54 57.1	24 24.2
5297	15 Sagittæ z	6.7	3 July 29	54 23.9	43.2	16 29 44.5	2 39.8	19 55 7.1	+16 32 24.3
5298	" . . .	6.7	4 Oct. 1	54 26.6	40.7	16 30 1.7	2 19.5	55 7.3	32 21.2
5299*	26 Cygni c^2	4.5	3 May 31	55 14.9	27.1	49 30 18.5	3 1.1	19 55 42.0	+49 33 19.6
5300	" . . .		3 July 27	55 15.7	26.1	49 30 30.7	4 42.4	55 41.8	33 13.1
5301	Lalande 38404 .	7.8	3 July 14	55 26.1	35.3	35 25 23.4	2 45.8	19 56 1.4	+35 28 9.2
5302	" . . .	7	4 Oct. 15	55 28.1	33.7	35 25 51.8	2 15.8	56 1.8	28 7.6
5303	" . . .	7.8	4 Oct. 16	55 27.9	33.7	35 25 51.9	2 15.8	56 1.6	28 7.7
5304	16 Sagittæ η		3 July 5	55 34.7	42.4	19 22 47.2	2 47.7	19 56 17.1	+19 25 34.9
5305	" . . .	6	3 July 8	55 34.7	42.4	19 22 47.4	2 46.5	56 17.1	25 33.9
5306	" . . .		3 July 26	55 34.9	42.2	19 22 49.0	2 42.0	56 17.1	25 31.0
5307	" . . .	6	4 Oct. 9	55 37.4	39.9	19 23 10.9	2 19.8	56 17.3	25 30.7
†5308*	Lalande 38423 .	8	3 July 12	55 41.7	41.1	22 36 41.6	2 45.8	19 56 22.8	+22 39 27.4
5309	Lalande 38438 .	7	4 Sept. 15	55		31 37 18.2	2 18.9	19 56	+31 39 37.1
5310	" . . .	7	4 Sept. 16	56 12.3	34.8	31 37 13.2	2 19.8	56 47.1	39 33.0
5311	" . .	7.6	4 Sept. 17	56 11.0	34.8	+31 37 16.3	2 19.6	56 45.8	39 35.9
5312	64 Aquilæ . .		3 July 9	56 52.2	49.5	− 1 17 20.3	2 45.9	19 57 41.7	− 1 14 34.4
5313	" . . .	7.8	3 July 10	56 52.1	49.5	− 1 17 21.3	2 45.8	57 41.6	14 35.5
5314	17 Vulpeculæ .	6	3 July 5	57 36.7	41.0	+22 59 59.6	2 50.1	19 58 17.7	+23 2 49.7
5315	" . . .		3 July 12	57 36.1	41.0	22 59 58.6	2 48.2	58 17.1	2 46.8
5316	" . . .	6	3 July 26	57 36.3	40.8	23 0 4.0	2 44.7	58 17.1	2 48.7
5317	" . . .		3 July 29	57 36.9	40.8	23 0 4.8	2 43.9	58 17.7	2 48.7
5318	" . . .		4 Sept. 7	57 39.6	38.1	23 0 21.2	2 24.3	58 17.7	2 45.5
5319*	" . . .		4 Sept. 14	57 39.3	38.2	23 0 21.3	2 23.2	58 17.5	2 44.5
5320	" . .	6	4 Sept. 17	57		23 0 26.8	2 22.9	58	2 49.7
5321	" . . .	5.6	4 Oct. 1	57 39.5	38.5	23 0 26.1	2 21.7	58 18.0	2 47.8
5322	" . . .	6	4 Oct. 9	57 39.4	38.6	23 0 26.0	2 21.3	58 18.0	2 47.3
5323	27 Cygni b^1		3 May 31	58 19.6	36.3	35 22 49.5	3 2.7	19 58 55.9	+35 25 52.2
5324	" . . .		3 July 14	58 20.9	35.4	35 23 1.1	2 49.6	58 56.3	25 50.7
5325	" . . .	6	4 Sept. 15	58 23.4	33.2	35 23 27.5	2 22.0	58 56.6	25 49.5
5326	" . . .	6	4 Sept. 16	58 23.2	33.2	35 23 26.8	2 21.8	58 56.4	25 48.6
5327	" . . .	6	4 Oct. 16	58 22.8	33.8	35 23 30.9	2 19.2	58 56.6	25 50.1
5328	Lalande 38591,2	6.7	4 Oct. 15	19 59 27.4	34.5	33 48 35.7	2 20.6	20 0 1.9	+33 50 56.3
5329*	65 Aquilæ θ		3 July 9	20 0 9.6	49.6	1 27 6.6	2 50.0	20 0 59.2	− 1 24 16.6
5330	" . .		3 July 10	20 0 8.9	+ 49.6	+ 1 27 2.8	+ 2 49.9	20 0 58.5	− 1 24 12.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5331	65 Aquilæ θ	6.5	3 July 23	20 0 9.5	+ 49.4	+ 1 27 3.6	+ 2 48.0	20 0 58.9	− 1 24 15.6
5332	"	4	4 Sept. 14	0 12.6	46.1	1 26 49.9	2 31.5	0 58.7	24 18.4
5333	"	4.5	4 Oct. 9	0 12.1	46.4	− 1 26 44.8	2 31.1	0 58.5	24 13.7
5334	Lalande 38631	8	4 Sept. 17	0 24.7	39.2	+20(16)		20 1 3.9	+20(19)
5335	17 Sagittæ θ	6.7	3 July 27	0 25.5	41.9	20 17 3.1	2 47.9	20 1 7.4	+20 19 51.0
5336	"	7.8	4 Sept. 16	0 27.8	39.2	20 17 11.6	2 26.7	1 7.0	19 38.3
5337	"	7	4 Sept. 17	0 28.0	39.2	20 17 16.6	2 26.6	1 7.2	19 43.2
5338	"	7	4 Oct. 16	0 27.4	39.7	+20 17 13.5	2 24.9	1 7.1	19 38.4
5339	2 Capricorni ξ²	7	3 July 8	0 23.1	53.5	−13 14 15.9	2 49.4	20 1 16.6	−13 11 26.5
5340	28 Cygni b²	5.6	3 May 31	1 23.9	36.0	+36 12 22.4	3 6.9	20 1 59.9	+36 15 29.3
5341	"		3 July 29	1 24.5	35.0	36 12 38.3	2 49.0	1 59.5	15 27.3
5342	18 Vulpeculæ		3 July 26	1 33.1	39.6	26 16 19.8	2 49.7	20 2 12.7	+26 19 9.5
5343	2581 Bradley	8.9	3 July 12	1 33.5	42.0	20 29 56.5	2 53.0	20 2 15.5	+20 32 49.5
5344	"	6	3 July 27	1 32.6	41.8	20 30 6.0	2·49.4	2 14.4	32 55.4
5345	"	7	4 Sept. 16	1 36.1	39.2	20 30 21.3	2 27.9	2 15.3	32 49.2
5346	"	7	4 Sept. 17	(1)		20 30 27.4	2 27.9	(2)	32 55.3
5347	"	7	4 Oct. 1	1 36.0	39.4	20 30 25.9	2 26.6	2 15.4	32 52.5
5348	"	7	4 Oct. 15	1 35.3	39.7	20 30 22.7	2 26.1	2 15.0	32 48.8
5349	"	7	4 Oct. 16	1 35.4	39.7	+20 30 22.4	2 26.1	2 15.1	32 48.5
5350	66 Aquilæ	6.7	4 Oct. 9	2 7.6	46.4	− 1 38 26.7	2 33.3	20 2 54.0	− 1 35 53.4
5351	"	5.6	4 Nov. 17	2 6.8	47.0	− 1 38 27.3	2 34.5	2 53.8	35 52.8
5352*	19 Vulpeculæ		3 July 26	2 46.9	39.7	+26 10 23.4	2 51.3	20 3 26.6	+26 13 14.7
5353	"	7.6	4 Sept. 15	2		26 10 47.3	2 28.5	3	13 15.8
5354	"	7	4 Sept. 16	2 49.0	37.1	26 10 46.4	2 28.3	3 26.1	13 14.7
5355	20 Vulpeculæ		3 July 23	2 57.6	39.8	25 50 31.5	2 52.5	20 3 37.4	+25 53 24.0
5356	"	7	4 Sept. 16	3 0.9	37.3	25 50 53.1	2 28.6	3 38.2	53 21.7
5357	"	6.7	4 Oct. 16	(3)		25 50 56.2	2 26.3	(3)	53 22.5
5358	Lalande 38821	8	4 Sept. 17	4 27.5	38.1	23 35 55.6	2 30.7	20 5 5.6	+23 38 26.3
5359	"	7	4 Oct. 1	4 26.9	38.4	23 35 59.7	2 29.2	5 5.3	38 28.9
5360	Anonyma	8	4 Oct. 9	5 22.0	39.3	21 20 0.1	2 30.4	20 6 1.3	+21 22 30.5
5361	"	7.8	4 Oct. 16	5 21.7	39.4	21 19 58.1	2 30.1	6 1.1	22 28.2
5362	21 Vulpeculæ		3 July 29	5 22.6	38.9	28 2 56.3	2 53.7	20 6 1.5	+28 5 50.0
5363	"	6	4 Oct. 15	5 24.6	37.0	28 3 17.3	2 28.6	6 1.6	5 45.9
†5364*			4 Sept. 7	5 41.1	45.1	+ 1 23		20 6 26.2	+ 1 26
5365	5 Capricorni α¹		3 July 12	5 39.9	53.4	−13 9 49.4	2 55.1	20 6 33.3	−13 6 54.3
5366	"		3 July 19	5 39.9	53.2	13 9 51.6	2 54.5	6 33.1	6 57.1
5367	"		4 Sept. 14	5 43.2	49.6	−13 9 38.5	2 40.7	6 32.8	6 57.8
5368	11(Hev)Vulpeculæ	5.6	4 Sept. 15	6 9.3	37.6	+24 56 45.9	2 32.5	20 6 46.9	+24 59 18.4
5369	"	6.5	4 Sept. 16	6 9.8	37.6	24 56 45.9	2 32.4	6 47.4	59 18.3
5370	22 Vulpeculæ		3 May 31	6 9.8	42.1	22 51 11.3	3 9.9	20 6 51.9	+22 54 21.2
5371	"	6.5	3 July 26	6 10.3	41.1	22 51 25.8	2 55.9	6 51.4	54 21.7
5372	"		3 July 27	6 10.6	41.1	22 51 27.4	2 55.2	6 51.7	54 22.6
5373*	"	6	4 Oct. 1	6 13.6	38.7	+22 51 50.4	2 31.3	6 52.3	54 21.7
5374	6 Capricorni α²		3 July 12	6 3.7	53.4	−13 12 5.6	2 55.8	20 6 57.1	−13 9 9.8
5375	"		3 July 19	6 3.8	53.3	13 12 7.3	2 55.2	6 57.1	9 12.1
5376	"		4 Sept. 7	6 7.1	49.5	13 11 54.4	2 41.2	6 56.6	9 13.2
5377	"		4 Sept. 14	6 6.7	49.5	−13 12		6 56.2	9
5378	29 Cygni b³		3 July 23	6 27.1	35.2	+36 9 1.7	2 57.2	20 7 2.3	+36 11 58.9
5379	23 Vulpeculæ	6.5	4 Sept. 16	6 52.0	36.8	27 9 57.2	2 32.7	20 7 28.8	+27 12 29.9
5380	18 Sagittæ	6.7	4 Oct. 1	6		20 57 6.7	2 32.3	20 7	+20 59 39.0
5381	"	7	4 Oct. 9	6 53.0	39.5	20 57 4.1	2 32.3	7 32.5	59 36.4
5382	"	7	4 Oct. 15	6 52.9	39.6	20 56 58.9	2 32.0	7 32.5	59 30.9
5383	"		4 Oct. 16	6 53.1	39.6	20 57 1.5	2 32.0	7 32.7	59 33.5
5384	Rumker 8153	7.8	4 Oct. 15	7 7.4	39.6	20 45 13.5	2 32.2	20 7 47.0	+20 47 45.7
5385	24 Vulpeculæ		3 July 29	7 32.6	40.6	24 0 55.4	3 0.5	20 8 13.2	+24 3 55.9
5386	"		3 July 30	7 32.4	40.6	24 0 54.6	2 56.0	8 13.0	3 50.6
5387	"	6	4 Sept. 15	7 35.4	38.0	24 1 11.1	2 34.2	8 13.4	3 45.3
5388	"	6	4 Sept. 17	7 35.8	38.0	+24 1 14.2	2 34.0	8 13.8	3 48.2
5389	Lalande 38971	7	3 July 10	7 33.4	49.1	− 0 1 14.7	+ 2 59.0	20 8 22.5	+ 0 1 44.3
5390	827 Mayer		3 July 14	20 8 37.2	+ 54.0	−15(27)		20 9 31.2	−15(24)

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5391	8 Capricorni ν	6	4 Sept. 14	20 8 43.7	+ 49.6	−13 25 25.8	+ 2 44.0	20 9 33.3	−13 22 41.8
5392	9 Capricorni β		3 July 14	8 51.7	54.0	15 27 4.9	2 59.5	20 9 45.7	−15 24 5.4
5393	" . . .		3 July 19	8 52.0	54.0	15 27 2.7	2 58.5	9 46.0	24 4.2
5394	" . . .	3	3 July 20	8 52.0	54.0	15 27 4.8	2 58.3	9 46.0	24 6.5
5395	" . . .		4 Sept. 7	(8)		−15 26 50.3	2 44.9	(9)	24 5.4
5396*	Piazzi 85 . . .		4 Oct. 16	9 8.0	39.6	+20 51 41.5	2 34.8	20 9 47.6	+20 54 16.3
5397	Rümker 8188 .	7.8	4 Oct. 9	9 23.0	39.6	20 33 0.9	2 35.1	20 10 2.6	+20 35 36.0
5398	" . . .	8	4 Oct. 15	9 22.4	39.7	20 32 57.1	2 34.8	10 2.1	35 31.9
5399	" . . .		4 Oct. 16	9 22.7	39.8	20 33 3.9	2 34.7	10 2.5	35 38.6
5400*	34 Cygni P		3 July 27	9 50.1	34.7	37 22 5.3	3 0.3	20 10 24.8	+37 25 5.6
5401*	" . . .		3 July 29	9 49.5	34.7	37 22 4.8	2 59.6	10 24.2	25 4.4
5402	Bessel, W.474 .	7	4 Oct. 1	9 50.8	37.5	26 19 54.8	2 34.6	20 10 28.3	+26 22 29.4
5403	Anonyma . . .	7	3 July 10	9 53.0	45.6	10 47 54.3	3 2.8	20 10 38.6	+10 50 57.1
5404*	35 Cygni m		3 July 30	10 22.4	36.2	34 18 51.5	2 59.8	20 10 58.6	+34 21 51.3
5405	" . . .	6	4 Sept. 16	10 24.5	34.0	34 19 17.7	2 35.6	10 58.5	21 53.3
5406	" . . .	6	4 Sept. 17	10 24.8	34.0	34 19 17.8	2 35.6	10 58.8	21 53.4
5407	2618 Bradley .	6.7	3 Sept. 2	10 28.3	34.1	40 4 5.2	2 50.9	20 11 2.4	+40 6 56.1
5408	Lalande 39102 .	6.7	4 Sept. 15	10 36.0	40.4	17 7 37.3	2 38.9	20 11 16.4	+17 10 16.2
5409	Lalande 39162 .	7	4 Oct. 9	12 10.5	39.1	22 10 42.6	2 37.7	20 12 49.6	+22 13 20.3
5410	Lalande 39181 .	8	4 Oct. 1	12 47.6	36.2	29 55 2.6	2 37.1	20 13 23.8	+29 57 39.7
5411	25 Vulpeculæ .	6	3 July 23	12 46.5	40.9	23 45 50.1	3 4.4	20 13 27.4	+23 48 54.5
5412	" . . .	6	4 Sept. 15	12 48.8	38.2	23 46 15.1	2 40.1	13 27.0	48 55.2
5413	" . . .	6	4 Oct. 15	12 48.6	38.7	23 46 17.2	2 37.8	13 27.3	48 55.0
5414	" . . .	6	4 Oct. 16	12 48.4	38.7	23 46 22.3	2 37.6	13 27.1	48 59.9
5415	37 Cygni γ		3 July 12	14 30.4	33.9	39 34 15.7	3 10.8	20 15 4.3	+39 37 26.5
5416	" . . .		3 July 19	14 29.6	33.8	39 34 15.5	3 8.6	15 3.4	37 24.1
5417	" . . .		3 July 20	14 29.8	33.8	39 34 15.1	3 8.3	15 3.6	37 23.4
5418	" . . .		3 July 26	14 29.2	33.7	39 34 18.8	3 6.5	15 2.9	37 25.3
5419	" . . .		3 July 27	14 30.5	33.7	39 34 19.2	3 6.2	15 4.2	37 25.4
5420	" . . .		3 July 29	14 29.3	33.7	39 34 17.9	3 5.6	15 3.0	37 23.5
5421	" . . .		3 July 30	14 29.6	33.7	39 34 22.1	3 5.2	15 3.3	37 27.3
5422	" . . .		3 Sept. 2	14 29.5	33.9	39 34 25.4	2 55.8	15 3.4	37 21.2
5423	" . . .		4 Sept. 7	14 31.8	31.5	39 34 42.0	2 41.7	15 3.3	37 23.7
5424	" . . .		4 Sept. 14	14 31.3	31.6	39 34 43.0	2 40.1	15 2.9	37 23.1
5425	" . . .		4 Sept. 15	14 31.4	31.6	39 34 44.3	2 40.0	15 3.0	37 24.3
5426	" . . .		4 Sept. 16	14 31.5	31.6	+39 34 41.1	2 39.8	15 3.1	37 20.9
5427	10 Capricorni π		3 July 9	14 56.1	55.2	−18 54 29.5	3 5.8	20 15 51.3	−18 51 23.7
5428*	39 Cygni h		3 July 23	15 14.8	37.8	+31 29 58.8	3 7.8	20 15 52.6	+31 33 6.6
5429	" . . .	6	4 Oct. 1	15 17.2	35.6	31 30 28.1	2 39.6	15 52.8	33 7.7
5430	" . . .	5	4 Oct. 9	15 17.1	35.7	31 30 28.1	2 39.0	15 52.8	33 7.1
5431	" . . .	6.5	4 Oct. 15	15 16.5	35.9	31 30 27.3	2 38.6	15 52.4	33 5.9
5432*	Piazzi 134 . .	7	4 Sept. 17	15 25.1	44.9	2 16 4.3	2 47.2	20 16 10.0	+ 2 18 51.5
5433	" . . .	8	4 Oct. 16	15 24.1	45.4	2 16 2.2	2 46.7	16 9.5	18 48.9
5434	Lalande 39326 .	7	3 July 10	15 54.5	44.9	+13 12 59.4	3 10.3	20 16 39.4	+13 16 9.7
5435	11 Capricorni ρ	3.4	3 May 31	16 30.1	56.1	−18 30 55.8	3 11.1	20 17 26.2	−18 27 44.7
5436	Piazzi 149 . .	7	4 Nov. 17	17 26.0	45.8	+ 2 14 17.3	2 50.0	20 18 11.8	+ 2 17 7.3
5437	Bessel, W.729 .	7.8	3 July 29	17 36.2	42.4	19 46 30.2	3 8.3	20 18 18.6	+19 49 38.5
5438	Piazzi 155 . .	7.8	4 Sept. 15	18 1.7	38.5	23 5 30.0	2 46.0	20 18 40.2	+23 8 16.0
5439	" . . .		4 Oct. 16	18 1.4	39.0	23 5 35.7	2 43.5	18 40.4	8 19.2
5440	Groombridge 3174	7.8	3 July 30	18 18.2	33.8	39 42 3.4	3 9.8	20 18 52.0	+39 45 13.2
5441	" . . .	8	4 Oct. 9	18 19.9	32.2	39 42 26.5	2 40.9	18 52.1	45 7.4
5442	" . . .	8	4 Oct. 15	18 19.8	32.4	39 42 27.8	2 40.3	18 52.2	45 8.1
5443	Lalande 39418 .	10	3 Sept. 2	18 17.4	45.6	10 16 47.7	3 3.5	20 19 3.0	+10 19 51.2
5444	Lalande 39426 .	7.8	4 Oct. 1	18 45.1	34.8	33 37 58.6	2 43.1	20 19 19.9	+33 40 41.7
5445*	Anonyma . .	8.9	3 July 10	18 41.6	42.8	19 24 10.5	3 14.4	20 19 24.4	+19 27 24.9
5446	40 Cygni . . .	6	3 July 23	19 34.8	35.0	37 44 10.2	3 13.3	20 20 9.8	+37 47 23.5
5447	" . . .		4 Sept. 14	19 36.9	32.7	37 44 37.1	2 47.2	20 9.6	47 24.3
5448	" . . .		4 Sept. 16	19 37.0	32.7	37 44 36.0	2 47.0	20 9.7	47 23.0
5449	" . . .	6	4 Oct. 9	19 36.7	33.2	37 44 40.8	2 44.4	20 9.9	47 25.2
5450*	1 Delphini . .		3 Sept. 2	20 19 57.3	+ 45.7	+10 11 9.9	+ 3 5.4	20 20 43.0	+10 14 15.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5451*	1 Delphini . .	6.7	4 Sept. 17	20 20 0.5	+ 42.6	+10 11 30.3	+ 2 50.3	20 20 43.1	+10 14 20.6
5452*	“ . . .	7	4 Sept. 18	20 1.0	42.7	10 11 26.7	2 50.4	20 43.7	14 17.1
5453	43 Cygni ω^1		4 Sept. 7	20 29.5	26.5	48 40 44.5	2 47.9	20 20 56.0	+48 43 32.4
5454	“ . . .	6.7	4 Oct. 15	20 28.6	27.4	48 40 44.7	2 41.4	20 56.0	43 26.1
5455	“ . . .	5	4 Nov. 17	20 26.6	28.4	48 40 51.4	2 41.6	20 55.0	43 33.0
5456	Bessel, W.815 .	7.8	3 July 20	20 24.1	43.0	18 42 50.6	3 13.7	20 21 7.1	+18 46 4.3
5457	41 Cygni i		3 July 26	20 34.8	38.7	29 39 18.5	3 13.1	20 21 13.5	+29 42 31.6
5458	“ . . .		3 July 29	20 34.5	38.7	29 39 21.8	3 12.3	21 13.2	42 34.1
5459	“ . . .		3 July 30	20 35.0	38.7	29 39 22.5	3 12.0	21 13.7	42 34.5
5460	“ . . .	5	4 Sept. 15	20 37.2	36.2	29 39 46.1	2 47.9	21 13.4	42 34.0
5461	Lalande 39506 .	7	3 July 19	20 31.1	43.0	18 42 21.4	3 14.1	20 21 14.1	+18 45 35.5
5462	“ . . .	7.8	3 July 20	20 31.1	43.0	18 42 18.7	3 13.9	21 14.1	45 32.6
5463	42 Cygni . . .		4 Oct. 9	21 8.7	34.2	35 44 52.3	2 44.6	20 21 42.9	+35 47 36.9
5464	Bessel, W.609 .	7.8	4 Oct. 1	21 10.0	41.4	15 5 44.8	2 49.4	20 21 51.4	+15 8 34.2
5465*	Rümker 8373 .	9	3 July 10	21 18.5	42.7	19 53 1.2	3 17.5	20 22 1.2	+19 56 18.7
5466*	“ . . .	7	4 Oct. 16	21 21.4	40.1	19 53 31.9	2 47.9	22 1.5	56 19.8
5467	Bessel, W.888 .	7	3 July 19	22 40.4	41.8	22 6 2.0	3 17.0	20 23 22.2	+22 9 19.0
5468	“ . . .	7.8	3 July 20	22 41.1	41.8	22 6 1.8	3 16.8	23 22.9	9 18.6
5469	44 Cygni . . .	6.7	3 Sept. 2	22 47.9	35.9	36 13 6.1	3 6.0	20 23 23.8	+36 16 12.1
5470	“ . . .	7	4 Sept. 14	22 50.0	33.5	36 13 16.0	2 49.6	23 23.5	16 5.6
5471	“ . . .		4 Sept. 15	22 50.1	33.5	36 13 19.7	2 49.4	23 23.6	16 9.1
5472	“ . . .		4 Sept. 16	22 50.1	33.5	36 13 14.8	2 49.3	23 23.6	16 4.1
5473	“ . . .	7	4 Oct. 9	22 49.9	34.0	36 13 18.2	2 46.3	23 23.9	16 4.5
5474	Lalande 39594,5 .	6	4 Sept. 17	22 46.8	38.0	25 5 22.2	2 50.6	20 23 24.8	+25 8 12.8
5475	“ . . .	7	4 Oct. 16	22 45.9	38.4	25 5 23.3	2 48.1	23 24.3	8 11.4
5476	2 Delphini ε		3 May 31	22 53.1	46.8	10 34 29.1	3 26.9	20 23 39.9	+10 37 56.0
5477	“ . . .		3 July 9	22 53.0	45.9	10 34 38.1	3 18.3	23 38.9	37 56.4
5478	“ . . .	4	4 Sept. 18	22 56.9	43.6	10 34 57.0	2 53.3	23 40.5	37 50.3
5479	“ . . .		4 Oct. 1	22 56.7	42.7	10 35 1.9	2 52.5	23 39.4	37 54.4
5480	“ . . .	6	4 Nov. 17	22 55.5	43.4	10 35 0.1	2 53.3	23 38.9	37 53.4
5481	45 Cygni ω^2		4 Sept. 7	23 24.8	27.0	48 14 13.4	2 49.7	20 23 51.8	+48 17 3.1
5482	“ . . .	6	4 Oct. 15	23 24.5	27.9	48 14 17.9	2 44.6	23 52.4	17 2.5
5483	3 Delphini η	6	4 Sept. 17	23		12 18 5.4	2 53.9	20 24	+12 20 59.3
5484*	Johnson 4835 .	6	3 July 23	23 46.2	28.2	49 3 35.7	3 19.5	20 24 14.4	+49 6 55.2
5485	46 Cygni ω^3	6	4 Oct. 15	24 41.7	27.8	48 30 16.0	2 46.2	20 25 9.5	+48 33 2.2
5486	Lalande 39681 .	6	3 July 26	24 32.6	42.4	20 15 10.7	3 17.2	20 25 15.0	+20 18 27.9
5487	4 Delphini ζ		3 July 9	25 13.0	44.8	13 56 10.2	3 21.6	20 25 57.8	+13 59 31.8
5488	“ . . .		3 July 10	25 12.5	44.8	13 56 12.2	3 20.3	25 57.3	59 32.5
5489	“ . . .		3 July 12	25 13.1	44.8	13 56 12.9	3 20.8	25 57.9	59 33.7
5490	“ . . .		3 Sept. 2	25 12.9	44.5	13 56 21.4	3 10.8	25 57.4	59 32.2
5491*	“ . . .		4 Sept. 17	25 16.2	41.6	13 56 39.5	2 55.2	25 57.8	59 34.7
5492	“ . . .	6	4 Sept. 18	25 16.9	41.6	13 56 32.8	2 55.1	25 58.5	59 27.9
5493	“ . . .	6	4 Oct. 9	25 14.9	41.9	13 56 37.5	2 53.8	25 56.8	59 31.3
5494	“ . . .	5	4 Oct. 16	25 15.6	42.0	13 56 37.8	2 53.6	25 57.6	59 31.4
5495*	47 Cygni l		3 July 29	25 31.2	36.7	34 31 5.2	3 18.4	20 26 7.9	+34 34 23.6
5496	“ . . .		3 July 30	25 30.8	36.7	34 31 7.6	3 18.1	26 7.5	34 25.7
5497*	Groombridge 3226	6	3 July 19	26 51.1	30.6	45 57 21.5	3 24.6	20 27 21.7	+46 0 46.1
5498	“ . . .	6	3 July 20	26 51.5	30.6	45 57 22.3	3 24.2	27 22.1	0 46.5
5499	“ . . .	6.7	3 July 27	26 50.9	30.6	45 57 25.0	3 21.5	27 21.5	0 46.5
5500*	“ . . .	7	4 Oct. 15	26 52.7	29.4	45 57 54.3	2 48.6	27 22.1	0 42.9
5501	“ . . .	6.7	4 Nov. 17	26 51.3	30.3	45 58 0.1	2 48.7	27 21.6	0 48.8
5502	26 Vulpeculæ .	6.7	4 Sept. 14	26 55.8	38.0	25 8 48.9	2 55.3	20 27 33.8	+25 11 44.2
5503	“ . . .	6	4 Sept. 15	26 55.7	38.0	25 8 52.6	2 55.2	27 33.7	11 47.8
5504	6 Delphini β		3 July 9	27 25.7	44.9	13 51 2.2	3 24.1	20 28 10.6	+13 54 26.3
5505	“ . . .		3 July 10	27 24.9	44.9	13 51 5.5	3 23.8	28 9.8	54 29.3
5506	“ . . .		3 Sept. 2	27 25.7	44.6	13 51 14.7	3 13.4	28 10.3	54 28.1
5507*	“ . . .		4 Sept. 17	27 28.6	41.6	13 51 33.1	2 57.5	28 10.2	54 30.6
5508	“ . . .	4	4 Sept. 18	27		13 51 27.5	2 57.5	28	54 25.0
5509	5 Delphini ι		4 Sept. 7	27 32.0	42.5	10 38 13.6	2 59.4	20 28 14.5	+10 41 13.0
5510	“ . . .		4 Sept. 16	20 27 29.1	+ 42.5	+10 38 13.6	+ 2 58.3	20 28 11.6	+10 41 11.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5511	5 Delphini ι		4 Oct. 1	20 27 32.5	+ 42.7	+10 38 19.1	+ 2 57.4	20 28 15.2	+10 41 16.5
5512	27 Vulpeculæ .		3 July 26	27 51.7	40.5	25 43 1.5	3 21.4	20 28 32.2	+25 46 22.9
5513	" . . .	6	4 Sept. 14	27		25 43 28.7	2 46.3	28	46 15.0
5514	7 Delphini κ		4 Oct. 1	28 41.1	43.1	9 20 27.7	2 58.5	20 29 24.2	+ 9 23 26.2
5515	" . . .	6	4 Oct. 9	28 41.4	43.2	9 20 24.9	2 58.6	29 24.6	23 23.5
5516	29 Vulpeculæ .	6	4 Sept. 18	28		20 27 21.4	2 57.7	20 29	+20 30 19.1
5517	2667 Bradley .	6	3 July 12	29 4.3	44.5	15 5 10.3	3 25.5	20 29 48.8	+15 8 35.8
5518	" . . .		3 July 23	29 4.5	44.3	15 5 6.1	3 23.0	29 48.8	8 29.1
5519	9 Delphini α		3 May 31	29 35.3	45.4	15 9 20.0	3 36.0	20 30 20.7	+15 12 56.0
5520	" . .		3 July 9	29 37.1	44.5	15 9 24.9	3 26.8	30 21.6	12 51.7
5521	" . . .		3 July 10	29 36.2	44.4	15 9 27.3	3 26.4	30 20.6	12 53.7
5522	" . . .		3 July 12	29 36.7	44.4	15 9 31.4	3 26.0	30 21.1	12 57.4
5523	" . . .		3 July 23	29 36.8	44.3	15 9 28.5	3 23.6	30 21.1	12 52.1
5524	Piazzi 255 .	7.8	4 Nov. 17	29 43.3	42.9	12 40 21.8	2 59.7	20 30 26.2	+12 43 21.5
5525	Piazzi 258 . .	6.7	3 July 29	30 6.9	39.0	29 35 8.2	3 23.4	20 30 45.9	+29 38 31.6
5526	" . . .	7	3 July 30	30 7.2	39.0	29 35 8.4	3 23.2	30 46.2	38 31.6
5527	" . . .	6.7	4 Sept. 15	30 9.2	36.4	29 35 34.5	2 58.0	30 45.6	38 32.5
5528	" . . .	6	4 Oct. 16	30 9.3	37.0	29 35 35.7	2 54.7	30 46.3	38 30.1
5529	Groombridge 3243	6.7	3 July 27	30 20.5	32.8	42 5 9.9	3 25.3	20 30 53.3	+42 8 35.2
5530	" . . .	8	4 Oct. 15	30 22.2	31.4	42 5 25.7	2 52.7	30 53.6	8 18.4
5531	Groombridge 3244	7	3 July 20	30 50.3	32.3	43 34 40.6	3 28.3	20 31 22.6	+43 38 8.9
5532	" . . .	6.7	3 July 26	30 50.2	32.3	43 34 39.1	3 26.4	31 22.5	38 5.5
5533*	Lalande 39956 .	7	4 Oct. 9	31 1.5	40.4	19 10 3.7	2 58.5	20 31 41.9	+19 13 2.2
5534	10 Delphini . .	7.6	4 Sept. 16	31 12.9	41.6	13 49 42.4	3 1.6	20 31 54.5	+13 52 44.0
5535	2674 Bradley .	8	3 July 9	32 7.2	31.8	44 54 20.9	3 34.0	20 32 39.0	+44 57 54.9
5536	" . . .	7	3 July 19	32 7.1	31.6	44 54 20.6	3 30.3	32 38.7	57 50.9
5537	" . . .	7	3 July 26	32 6.6	31.6	44 54 26.9	3 28.0	32 38.2	57 54.9
5538	" . . .	7	3 Sept. 2	32 7.9	31.7	44 55 33.9	3 16.3	32 39.6	57 50.2
5539	" . . .	7	4 Sept. 7	32 8.9	29.5	44 54 56.7	3 0.7	32 38.4	57 56.8
5540	" . . .	7	4 Sept. 14	32 9.2	29.6	44 54 54.0	2 58.9	32 38.8	57 52.9
5541	" . . .	7	4 Oct. 1	32 8.4	29.9	44 55 1.0	2 55.8	32 38.3	57 56.8
5542	Piazzi 272 . .	7	4 Sept. 18	31		16 45 37.9	3 0.7	20 32	+16 48 38.6
5543	" . . .	6	4 Nov. 17	32 5.2	41.7	16 45 46.4	3 0.7	32 46.9	48 47.1
5544	Bessel, W.1193 .	6.7	3 July 27	32 31.4	32.9	42 42 5.2	3 27.9	20 33 4.3	+42 45 33.1
5545	12 Delphini δ	5.6	4 Sept. 18	33		14 18 51.2	3 3.6	20 34	+14 21 54.8
5546	50 Cygni α		3 April 28	34 3.1	34.4	44 30 19.4	3 53.8	20 34 37.5	+44 34 13.2
5547	" . . .		3 May 13	34 3.3	33.8	44 30 25.8	3 51.8	34 37.1	34 17.6
5548	" . . .		3 May 31	34 3.8	33.2	44 30 25.3	3 47.8	34 37.0	34 13.1
5549	" . . .		3 July 9	34 5.0	32.1	44 30 40.9	3 35.9	34 37.1	34 16.8
5550	" . . .		3 July 10	34 4.8	32.1	44 30 40.6	3 35.6	34 36.9	34 16.2
5551	" . . .		3 July 12	34 4.9	32.1	44 30 40.4	3 34.9	34 37.0	34 15.3
5552	" . . .		3 July 19	34 4.4	32.0	44 30 44.7	3 32.5	34 36.4	34 17.2
5553	" . . .		3 July 20	34 5.1	32.0	44 30 45.4	3 32.2	34 37.1	34 17.6
5554	" . . .		3 July 23	34 5.0	32.0	44 30 44.6	3 31.2	34 37.0	34 15.8
5555	" . . .		3 July 26	34 5.3	31.9	44 30 47.3	3 30.2	34 37.2	34 17.5
5556	" . . .		3 July 27	(34)		44 30 51.6	3 29.9	(34)	34 21.5
5557	" . . .		3 July 29	34 5.2	31.9	44 30 47.4	3 29.1	34 37.1	34 16.5
5558	" . . .		3 July 30	34 5.1	31.9	44 30 48.9	3 28.8	34 37.0	34 17.7
5559	" . . .		3 Sept. 2	34 4.9	32.0	44 30 58.1	3 18.6	34 36.9	34 16.7
5560	" . . .		4 Sept. 7	34 6.8	29.8	44 31 12.8	3 2.7	34 36.6	34 15.5
5561	" . . .		4 Sept. 14	34 7.2	29.9	44 31 18.8	3 1.0	34 37.1	34 19.8
5562	" . . .		4 Sept. 15	34 7.0	29.9	44 31 14.9	3 0.8	34 36.9	34 15.7
5563*	" . . .		4 Sept. 16	34 7.3	29.9	44 31 12.6	3 0.5	34 37.2	34 13.1
5564	" . . .		4 Sept. 17	34 7.4	30.0	44 31 18.9	3 0.4	34 37.4	34 19.3
5565	" . . .		4 Oct. 1	34 6.5	32.2	44 31 17.7	2 57.8	34 36.7	34 15.5
5566	" . . .	2	4 Oct. 9	34 6.4	30.4	44 31 17.0	2 56.9	34 36.8	34 13.9
5567	" . . .	2	4 Oct. 15	34 6.6	30.6	44 31 17.4	2 56.1	34 37.2	34 13.5
5568	" . . .	2	4 Oct. 16	34 6.3	30.6	44 31 19.0	2 56.1	34 36.9	34 15.1
5569	" . . .	2	4 Nov. 28	34 5.1	31.7	44 31 22.3	2 57.3	34 36.8	34 19.6
5570	Lalande 40068 .	8	3 Sept. 7	20 34 19.9	+ 41.7	+23 1 17.9	+ 3 19.3	20 35 1.6	+23 4 37.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5571	30 Vulpeculæ .	6	4 Sept. 18	20 34		+24 30 46.6	+ 3 2.7	20 35	+24 33 49.3
5572	" . . .	6	4 Oct. 9	(34)		24 30 44.7	3 0.7	(35)	33 45.4
5573	51 Cygni . . .	6	4 Nov. 17	35 33.3	+ 28.6	49 34 42.0	2 56.7	20 36 1.9	+49 37 38.7
5574	12 Delphini γ		3 July 9	36 38.2	44.6	15 21 9.5	3 34.8	20 37 22.8	+15 24 44.3
5575	" . . .		3 July 27	36 38.1	44.3	15 21 15.4	3 30.6	37 22.4	24 46.0
5576	" . . .	5	4 Sept. 18	36		15 21 33.8	3 6.5	37	24 40.3
5577	52 Cygni k		3 July 26	36 45.5	39.2	29 56 15.8	3 32.0	20 37 24.7	+29 59 47.8
5578	53 Cygni ε		3 May 31	37 28.1	39.1	33 9 47.8	3 49.4	20 38 7.2	+33 13 37.2
5579	" . . .		3 July 19	37 29.4	37.9	33 10 1.0	3 35.2	38 7.3	13 36.2
5580	" . . .		3 July 20	37 29.6	37.9	33 10 0.2	3 34.9	38 7.5	13 35.1
5581	" . . .		3 July 23	37 29.2	37.9	33 9 58.4	3 34.0	38 7.1	13 32.4
5582	" . .		4 Sept. 15	37 31.6	35.3	33 10 31.3	3 5.4	38 6.9	13 36.7
5583	" . . .		4 Sept. 16	37 31.6	35.3	33 10 28.6	3 5.1	38 6.9	13 33.7
5584	" . . .		4 Sept. 17	37 31.3	35.3	33 10 33.9	3 4.9	38 6.6	13 38.8
5585	" . . .	3	4 Nov. 28	37 30.5	36.7	33 10 36.8	3 2.8	38 7.2	13 39.6
5586	54 Cygni λ		3 July 26	39 0.3	36.8	35 42 9.5	3 35.0	20 39 37.1	+35 45 44.5
5587	" . . .		3 July 29	39 0.5	36.8	35 42 8.8	3 34.1	39 37.3	45 42.9
5588	" . . .	6	3 July 30	39 0.9	36.8	+35 42 10.2	3 33.8	39 37.7	45 44.0
5589	18 Capricorni ω		4 Sept. 7	38 57.6	53.3	−27 42 44.0	3 18.4	20 39 50.9	−27 39 25.6
5590	Groombridge 3278	8	4 Nov. 17	39 23.2	31.0	+45 45 17.9	3 1.1	20 39 54.2	+45 48 19.0
5591	14 Delphini . .		3 Sept. 7	39 13.2	46.8	7 4 22.2	3 26.8	20 40 0.0	+ 7 7 49.0
5592	15 Delphini . .		3 July 23	39 20.7	45.5	11 44 41.3	3 34.0	20 40 6.2	+11 48 15.3
†5593		6	4 Sept. 7	40 8.5	37.8	26 18 7.5	3 10.3	20 40 46.3	+26 21 17.8
†5594*		8.9	3 July 30	40 41.3	35.0	39 37 3.9	3 37.1	20 41 16.3	+39 40 41.0
5595	Lalande 40279 .	7.8	4 Sept. 28	40 44.5	35.0	34 46 42.6	3 6.2	20 41 19.5	+34 49 48.8
5596	" . . .	7	4 Oct. 16	40 43.7	35.4	34 46 43.6	3 4.4	41 19.1	49 48.0
5597	Rümker 8601 .	7	3 July 27	40 41.1	43.8	17 15 8.8	3 35.1	20 41 24.9	+17 18 43.9
5598	Lalande 40289,90	7.8	4 Sept. 14	40 54.3	37.8	26 35 15.0	3 9.8	20 41 32.1	+26 38 24.8
5599	" . . .	8	4 Sept. 15	40 54.5	37.8	26 35 17.9	3 9.7	41 32.3	38 27.6
5600	" . . .	9	4 Oct. 9	40 55.3	38.2	26 35 15.9	3 6.9	41 33.5	38 22.8
5601	55 Cygni . . .		3 July 23	41 35.6	31.9	45 18 56.4	3 37.0	20 42 7.5	+45 22 33.4
5602	56 Cygni . . .	6	3 July 12	42 25.0	33.1	43 14 55.7	3 44.2	20 42 58.4	+43 18 39.9
5603	" . . .		3 July 19	42 25.0	33.2	43 15 0.2	3 41.9	42 58.2	18 42.1
5604	" . . .		3 July 26	42 25.3	33.2	43 15 2.9	3 39.5	42 58.5	18 42.4
5605	Piazzi 358 . .	6.7	3 July 29	42 18.7	40.3	27 27		20 42 59.0	+27 30
5606	" . . .	6.7	3 July 30	42 19.1	40.3	27 26 54.9	3 36.8	42 59.4	30 33.7
5607	" . . .	7	4 Oct. 9	42 21.2	37.9	27 27 20.3	3 8.0	42 59.1	30 28.3
5608	" . . .	6	4 Nov. 17	42 20.0	38.6	27 27 22.4	3 7.8	42 58.6	30 30.2
5609*	Bessel, W.1483 .	8	3 July 9	42 35.0	44.1	17 13 39.4	3 41.6	20 43 19.1	+17 17 21.0
5610*	" . . .	8	3 July 10	42 34.7	44.1	17 13 33.7	3 41.3	43 18.8	17 15.0
5611	" .	6.7	3 Sept. 7	42 34.8	43.8	17 13 36.5	3 29.0	43 18.6	17 5.5
5612	31 Vulpeculæ r		3 July 17	42 51.9	40.8	26 17 46.9	3 38.3	20 43 32.7	+26 21 25.2
5613	" . . .	6.5	4 Sept. 14	42 55.5	38.0	26 18 6.3	3 11.8	43 33.5	21 18.1
5614	" . . .	6	4 Sept. 15	42 56.3	38.0	26 18 9.3	3 11.7	43 34.3	21 21.0
5615	" . . .	6.5	4 Sept. 16	42 56.3	38.0	26 18 7.8	3 11.5	43 34.3	21 19.3
5616	" . . .	6	4 Sept. 18	42 56.0	38.0	26 18 9.5	3 11.3	43 34.0	21 20.8
5617*	Lalande 40403,4 .	7	4 Sept. 28	44 6.9	37.3	28 50 59.5	3 10.6	20 44 44.2	+28 54 10.1
5618	" . . .	6.7	4 Oct. 16	44 6.5	37.6	28 51 3.4	3 8.9	44 44.1	54 12.3
5619	Piazzi 376 . .	6	3 July 20	44 52.0	47.4	3 42 56.1	3 39.7	20 45 39.4	+ 3 46 35.8
5620*	" . . .	6	4 Oct. 1	45		3 43 17.9	3 16.5	45	46 34.4
5621	Anonyma . . .	6.7	4 Oct 15	45 11.9	36.3	32 37 49.0	3 9.3	20 45 48.2	+32 40 58.3
5622	" . . .	6	4 Oct. 16	45 11.4	36.3	32 37 53.8	3 8.2	45 47.7	41 2.0
5623	32 Vulpeculæ q	6.7	3 July 9	45 21.9	40.8	27 14 27.6	3 46.1	20 46 2.7	+27 18 13.7
5624*	" . . .	7	3 July 10	45 21.1	40.8	27 14 29.9	3 45.6	46 1.9	18 15.5
5625	" . . .		3 July 27	45 21.7	40.8	27 14 34.0	3 41.0	46 2.5	18 15.0
5626	" . . .	6.7	3 July 29	45 21.2	40.6	27 14 36.0	3 40.4	46 1.8	18 16.4
5627	" . . .	6	3 July 30	45 21.6	40.5	27 14 38.8	3 40.1	46 2.1	18 18.9
5628	" . . .	5	4 Oct. 9	45 24.1	38.1	27 15 2.4	3 11.1	46 2.2	18 13.5
5629	" . . .	6	4 Sept. 7	45 24.5	37.6	27 15 0.6	3 15.5	46 2.1	18 16.1
5630	" . . .	6	4 Sept. 14	20 45 23.9	+ 37.7	+27 15 1.0	+ 3 14.2	20 46 1.6	+27 18 15.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5631	32 Vulpeculæ q	6	4 Sept. 16	20 45 24.5	+ 37.7	+27 14 59.6	+ 3 13.9	20 46 2.2	+27 18 13.5
5632	" . . .	6.7	4 Sept. 18	45 24.8	37.8	27 14 58.3	3 13.6	46 2.6	18 11.9
5633	" . . .	6	4 Sept. 28	45 24.3	37.9	27 14 57.2	3 12.1	46 2.2	18 9.3
5634	" . . .	5	4 Nov. 17	45 23.3	38.8	27 15 5.4	3 10.9	46 2.1	18 16.3
5635	17 Delphini . .		3 Sept. 7	45 23.3	45.1	12 54 28.9	3 32.6	20 46 8.4	+12 58 1.5
5636	57 Cygni . . .		3 July 19	45 36.8	33.3	43 34 24.0	3 45.5	20 46 10.1	+43 38 9.5
5637	" . . .		3 July 23	45 37.0	33.2	43 34 20.4	3 44.2	46 10.2	38 4.6
5638*	" . . .		3 July 26	45 37.3	33.2	43 34 27.5	3 43.2	46 10.5	38 10.7
5639	18 Delphini . .		3 Sept. 7	48 2.0	46.0	10 1 1.2	3 35.7	20 48 48.0	+10 4 36.9
5640	Lalande 40572 .	7.8	3 July 27	48 14.7	41.2	25 34 21.9	3 44.0	20 48 55.9	+25 38 5.9
5641*	" . . .	8.9	3 July 29	48 14.3	41.2	25 34 25.1	3 43.9	48 55.5	38 9.0
5642	1 Equulei . .	6.7	3 July 9	48 16.8	48.2	3 28 24.7	3 45.4	20 49 5.0	+ 3 32 10.1
5643*	" . . .		3 July 20	48 17.2	48.0	3 28 23.4	3 43.4	49 5.2	32 6.8
5644	" . . .	7	3 July 23	48 17.1	48.0	3 28 24.3	3 42.9	49 5.1	32 7.2
5645*	" . . .	6	4 Oct. 1	48 20.1	44.7	3 28 50.7	3 19.9	49 4.8	32 10.6
5646	" . . .	6.7	4 Nov. 17	48 19.9	45.4	3 28 47.6	3 20.7	49 5.3	32 8.3
5647	33 Vulpeculæ .	6	4 Sept. 18	48 40.0	39.6	21 30 16.7	3 17.7	20 49 19.6	+21 33 34.4
5648	" . . .	6	4 Sept. 28	48 40.4	39.8	21 30 16.7	3 16.3	49 20.2	33 33.0
5649	" . . .	6	4 Oct. 9	48 40.5	39.9	21 30 19.6	3 15.6	49 20.4	33 35.2
5650	" . . .	6	4 Oct. 16	48 40.0	40.1	21 30 18.7	3 15.1	49 20.1	33 33.8
5651	58 Cygni ν		3 July 12	49 8.1	35.3	40 20 22.1	3 51.2	20 49 43.4	+40 24 13.3
5652	" . . .		3 July 19	49 8.4	35.2	40 20 21.9	3 49.0	49 43.6	24 10.9
5653	" . . .		3 July 26	49 8.0	35.1	40 20 24.2	3 46.5	49 43.1	24 10.7
5654	" . . .	4	4 Sept. 7	49 11.0	32.6	40 20 52.5	3 14.4	49 43.6	24 6.9
5655*	" . . .	4.5	4 Oct. 15	49 10.2	33.3	40 20 59.8	3 11.8	49 43.5	24 11.6
5656	Piazzi 417 . .	8	4 Oct. 9	49 27.1	39.9	21 31 34.0	3 16.3	20 50 7.0	+21 34 50.3
5657	" . . .	7	4 Oct. 16	49 26.4	40.1	21 31 33.3	3 15.8	50 6.5	34 49.1
5658*	Lalande 40705 .	8.9	3 July 27	51 6.3	39.0	31 39 43.6	3 47.7	20 51 45.3	+31 43 31.3
5659	" . . .	9	3 July 29	51 6.2	39.0	31 39 44.0	3 46.9	51 45.2	43 30.9
5660*	2 Equulei . .	7	3 July 23	51 33.7	47.2	6 20 19.9	3 46.6	20 52 20.9	+ 6 24 6.5
5661	" . . .	7	3 Sept. 7	51 33.5	47.0	6 20 33.5	3 39.8	52 20.5	24 13.3
5662	Lalande 40739 .	7	4 Oct. 1	51 52.9	45.0	+ 2 30 56.0	3 23.5	20 52 37.9	+ 2 34 19.5
5663	22 Capricorni η		3 July 9	52 5.4	55.1	—20 41 53.9	3 45.4	20 53 0.5	—20 38 8.5
5664	59 Cygni f¹		3 July 12	52 29.2	32.0	+46 40 47.2	3 55.6	20 53 1.2	+46 44 42.8
5665*	" . . .		3 July 19	52 29.6	31.9	46 40 48.8	3 53.3	53 1.5	44 42.1
5666	" . . .		3 July 26	52 30.3	31.8	46 40 53.4	3 51.0	53 2.1	44 44.4
5667	Lalande 40764 .	6.7	4 Sept. 28	52 40.5	35.3	35 11 32.5	3 18.1	20 53 15.8	+35 14 50.6
5668	" . . .	7	4 Oct. 9	52 40.0	35.5	35 11 35.5	3 16.7	53 15.5	14 52.2
5669	" . . .	6.7	4 Oct. 15	52 39.8	35.6	35 11 34.3	3 15.9	53 15.4	14 50.2
5670	" . . .	6	4 Oct. 16	52 39.7	35.6	35 11 36.4	3 15.8	53 15.3	14 52.2
5671	Lalande 40773 .	6	4 Sept. 18	52 53.9	41.9	13 53 28.3	3 22.9	20 53 35.8	+13 56 51.2
5672	Johnson 5078 .	7	3 July 27	54 1.6	33.8	43 20 43.4	3 52.0	20 54 35.4	+43 24 35.4
5673	" . . .	8	3 July 29	54 1.0	33.8	43 20 44.7	3 51.3	54 34.8	24 36.0
5674	Piazzi 448 . .	7	4 Oct 1	53 50.7	45.1	2 5 56.4	3 25.4	20 54 35.8	+ 2 9 21.8
5675	3 Equulei . .	6	3 July 23	53 49.3	47.7	4 39 10.8	3 48.8	20 54 37.0	+ 4 42 59.6
5676	" . . .	6	4 Nov. 28	53 51.9	45.2	4 39 33.0	3 26.3	54 37.1	42 59.3
5677	Lalande 40811 .	7.8	4 Sept. 7	54 2.8	36.4	31 30 39.7	3 23.8	20 54 39.2	+31 34 3.5
5678	Bradley 2740 .	7	4 Sept. 28	54 45.5	34.3	37 49 1.9	3 19.8	20 55 19.8	+37 52 21.7
5679	" . . .	6.7	4 Oct. 15	54 44.5	34.6	37 49 3.7	3 17.6	55 19.1	52 21.3
5680	" . .	6.7	4 Oct. 16	54 44.6	34.7	37 49 5.7	3 17.4	55 19.3	52 23.1
5681	Anonyma . . .	7	3 July 26	56 16.2	32.5	46 0 47.0	3 55.0	20 56 48.7	+46 4 42.0
5682	" . . .	7	3 July 27	56 15.8	32.5	46 0 47.2	3 54.6	56 48.3	4 41.8
5683	Lalande 40896 .	8	4 Oct. 9	56 10.5	40.5	+20 5 55.3	3 22.9	20 56 51.0	+20 9 18.2
5684	Bessel, W.1526 .	6.7	3 July 9	56 14.4	49.7	— 1 37 34.3	3 52.7	20 57 4.1	— 1 33 41.6
5685	" . . .	7.8	4 Oct. 1	56 17.9	46.0	— 1 37 8.3	3 28.8	57 3.9	33 39.5
5686	62 Cygni ξ		3 July 19	57 5.0	34.3	+43 4 8.3	3 57.1	20 57 39.3	+43 8 5.4
5687	" . . .		3 July 29	57 5.2	34.2	43 4 10.8	3 54.5	57 39.4	8 5.3
5688	Piazzi 473 .	6.7	4 Nov. 23	57 2.9	39.5	26 4 27.7	3 22.4	20 57 42.4	+26 7 50.1
5689	61 Cygni, prec. .	6	3 July 12	57 14.5	37.0	37 41 32.6	3 59.6	20 57 51.5	+37 45 32.2
5690	" . . .	6	4 Sept. 28	20 57 17.2	+ 34.5	+37 42 11.3	+ 3 22.2	20 57 51.7	+37 45 33.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5691	61 Cygni, prec. .	6	4 Oct. 15	20 57 16.4	+ 34.8	+37 42 15.7	+ 3 20.0	20 57 51.2	+37 45 35.7
5692*	" . . .	6.7	4 Oct. 16	57 16.6	34.8	37 42 17.3	3 19.9	57 51.4	45 37.2
5693	" . . .	6	4 Nov. 17	57 15.9	35.5	37 42 21.4	3 19.3	57 51.4	45 40.7
5694	" . . .	6	4 Nov. 28	57 15.8	35.7	37 42 19.0	3 20.2	57 51.5	45 39.2
5695	61 Cygni foll.	7	4 Oct. 15	57 18.0	34.8	37 42 22.7	3 20.1	20 57 52.8	+37 45 42.8
5696	Lalande 40954,5	6.7	3 Sept. 18	57 27.8	41.7	14 48 23.7	3 27.2	20 58 9.5	+14 51 50.9
5697	63 Cygni f^2		3 July 26	59 11.3	32.3	46 46 59.7	3 58.1	20 59 43.6	+46 50 57.8
5698	" . . .		3 July 27	59 10.9	32.3	46 47 1.8	3 57.8	59 43.2	50 59.6
5699	" . . .		3 July 29	59 10.5	32.2	46 46 58.5	3 57.1	59 42.7	50 55.6
5700	Piazzi 492 . .	7.8	4 Oct. 1	59 6.1	45.1	2 4 47.8	3 30.4	20 59 51.2	+ 2 8 18.2
5701	Piazzi 1 . . .	6.7	3 July 9	59 30.0	40.6	29 20 14.9	4 1.6	21 0 10.6	+29 24 16.5
5702	" . . .	7	4 Sept. 18	59 32.5	37.5	29 20 49.2	3 27.2	0 10.0	24 16.4
5703	" . . .	6	4 Sept. 28	59		29 20 49.2	3 25.4	0	24 14.6
5704*	" . . .	6	4 Oct. 9	59 32.5	37.8	29 20 49.8	3 24.4	0 10.3	24 14.2
5705	" . . .		4 Oct. 15	59 32.4	37.9	29 20 48.3	3 23.6	0 10.3	24 11.9
5706	" . . .	6	4 Oct. 16	59 32.9	37.9	29 20 51.8	3 23.5	0 10.8	24 15.3
5707	5 Equulei γ		3 July 23	20 59 49.8	46.5	9 16 5.7	3 55.2	21 0 36.3	+ 9 20 0.9
†5708	6 Equulei . .	5.6	3 July 23	21 0 1.6	46.5	9 12 14.7	3 55.5	21 0 48.1	+ 9 16 10.2
5709	Piazzi 21 . . .	8	4 Oct. 1	1 53.3	45.1	1 46 17.8	3 33.0	21 2 38.4	+ 1 49 50.8
5710	" . . .	9.10	4 Nov. 17	1 53.0	45.8	1 46 15.7	3 33.7	2 38.8	49 49.4
5711*	Lalande 41143 .	8	3 July 29	2 14.4	33.7	44 37 28.7	4 0.1	21 2 48.1	+44 41 28.8
5712	Lalande 41155 .	7	4 Oct. 9	2 26.4	35.8	35 25 47.9	3 25.8	21 3 2.2	+35 29 13.7
5713	" . . .	7	4 Nov. 28	2 25.0	36.7	35 25 57.1	3 25.3	3 1.7	29 22.4
5714	Piazzi 26 . . .	7	3 July 26	2 36.0	40.6	28 49 55.9	3 59.6	21 3 16.6	+28 53 55.5
5715	" . . .	7.8	3 July 27	2 36.4	40.6	28 49 58.9	3 59.4	3 17.0	53 58.3
5716	" . . .	8	4 Oct. 15	2 38.5	38.1	28 50 27.7	3 26.5	3 16.6	53 54.2
5717	" . . .	8	4 Oct. 16	2 38.8	38.2	28 50 26.5	3 26.5	3 17.0	53 53.0
5718	Lalande 41165 .	7	3 July 19	2 47.8	40.4	29 44 11.8	4 1.9	21 3 28.2	+29 48 13.7
5719*	Piazzi 30 . . .	8.9	3 July 9	3 9.1	36.3	+40 18 13.0	4 7.1	21 3 45.4	+40 22 20.1
5720	Bessel, W.128 .	7.8	4 Oct. 1	3 35.3	45.7	— 0 47 5.9	3 36.9	21 4 21.0	— 0 43 29.0
5721	64 Cygni ζ		3 July 12	3 45.3	40.7	+29 20 41.1	4 4.9	21 4 26.0	+29 24 46.0
5722	" . . .		3 July 19	3 45.0	40.5	29 20 44.8	4 2.9	4 25.5	24 47.7
5723	" . . .		3 July 26	3 45.4	40.4	29 20 47.5	4 0.8	4 25.8	24 48.3
5724	" . . .		3 July 27	3 45.5	40.4	29 20 48.1	4 0.6	4 25.9	24 48.7
5725	" . . .		4 Sept. 18	3 48.3	37.6	29 21 14.3	3 31.0	4 25.9	24 45.3
5726	" . . .	6.5	4 Oct. 15	3 47.9	38.0	29 21 20.5	3 27.2	4 25.9	24 47.7
5727	" . . .	5.4	4 Oct. 16	3 48.0	38.0	29 21 20.9	3 27.4	4 26.0	24 48.3
5728	" . . .	5.6	4 Nov. 23	3 47.1	38.7	29 21 19.1	3 27.6	4 25.8	24 46.7
5729*	7 Equulei δ		3 July 23	3 57.7	46.6	9 8 19.0	3 58.4	21 4 44.3	+ 9 12 17.4
5730	Lalande 41239,40	7	4 Sept. 28	4 12.5	35.8	34 55 22.3	3 29.0	21 4 48.3	+34 58 51.3
5731	" . . .	7	4 Nov. 28	4 11.4	37.0	34 55 30.0	3 27.0	4 48.4	58 57.0
5732	Piazzi 43 . . .	7.6	4 Nov. 28	5		35 45 26.5	3 28.5	21 5	+35 48 55.0
5733	Lalande 41269 .	6	4 Oct. 9	5 0.1	38.0	29 1 21.2	3 29.2	21 5 38.1	+29 4 50.4
5734	" . . .	7	4 Oct. 15	4 59.9	38.1	29 1 17.5	3 28.7	5 38.0	4 46.2
5735*	" . . .	7	4 Oct. 16	5 0.3	38.2	29 1 20.3	3 28.6	5 38.5	4 48.9
5736	8 Equulei α		3 July 23	5 1.7	47.9	4 21 46.8	3 59.9	21 5 49.6	+ 4 25 46.7
5737	" . . .		3 Sept. 15	5 1.6	47.7	+ 4 21 53.8	3 52.8	5 49.3	25 46.6
5738	Lalande 41293 .	7	4 Oct. 1	5 32.2	46.1	— 2 29 31.6	3 37.2	21 6 18.3	— 2 25 54.4
5739	" . . .	7	4 Nov. 17	5 32.0	46.8	— 2 29 37.2	3 38.3	6 18.8	25 58.9
5740	Piazzi 50 . . .	8.9	3 July 9	6 2.6	36.5	+40 15 12.8	4 10.0	21 6 39.1	+40 19 22.8
5741	65 Cygni τ		3 July 27	6 10.6	37.5	37 7 43.6	4 3.7	21 6 48.1	+37 11 47.3
5742	" . . .		3 July 29	6 11.0	37.5	37 7 40.9	4 3.2	6 48.5	11 44.1
5743	Piazzi 68 . . .	8	4 Oct. 1	8 3.5	43.6	8 4 9.2	3 36.9	21 8 47.1	+ 8 7 46.1
5744	Lalande 41385 .	6.7	4 Nov. 28	8 19.7	34.8	41 21 52.2	3 29.2	21 8 54.5	+41 25 21.4
5745	67 Cygni σ	5	3 July 27	8 56.5	37.1	38 29 39.6	4 6.9	21 9 33.6	+38 33 46.5
5746	" . . .	6.5	3 July 29	8 57.0	37.1	38 29 35.0	4 6.2	9 34.1	33 41.2
5747	" . . .	6	4 Oct. 15	8 59.0	35.0	38 30 12.7	3 30.6	9 34.0	33 43.3
5748*	" . . .	6	4 Nov. 17	8 58.4	35.7	38 30 18.3	3 29.5	9 34.1	33 47.8
5749*	" . . .	6	4 Nov. 23	8 57.6	+ 35.8	38 30 17.2	3 29.8	9 33.4	33 47.0
5750	" . . .	6	4 Nov. 28	21 8		+38 30 16.7	+ 3 29.6	21 9	+38 33 46.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5751	66 Cygni υ		3 July 12	21 9 3.1	+ 39.2	+33 59 35.3	+ 4 11.0	21 9 42.3	+34 3 46.3
5752*	" . . .		3 July 19	9 3.2	39.1	33 59 41.0	4 8.8	9 42.3	3 49.8
5753	" . . .		3 July 23	9 3.6	39.0	33 59 38.2	4 7.6	9 42.6	3 45.8
5754	" . . .		4 Sept. 18	9 5.8	36.2	34 0 8.5	3 35.5	9 42.0	3 44.0
5755	" . . .		4 Sept. 28	9 6.3	36.4	34 0 11.1	3 33.6	9 42.7	3 44.7
5756	" . . .	6	4 Oct. 16	9 5.8	36.7	34 0 16.8	3 31.2	9 42.5	3 48.0
5757	Groombridge 3421	7	3 July 9	9 13.5	36.0	41 46 50.6	4 13.5	21 9 49.5	+41 51 4.1
5758	Lalande 41476 .	6.7	3 July 26	10 25.0	43.4	21 7 3.4	4 6.4	21 11 8.4	+21 11 9.8
5759	9 Equulei . .	6	4 Sept. 7	10 26.9	43.8	6 27 8.7	3 41.3	21 11 10.7	+ 6 30 50.0
5760	Anonyma . . .	7	4 Oct. 15	10 48.8	35.5	37 20 24.1	3 32.3	21 11 24.3	+37 23 56.4
5761	" . . .	7.8	4 Oct. 16	10 48.6	35.5	37 20 23.9	3 32.3	11 24.1	23 56.2
5762	Lalande 41497,8 .	7	4 Oct. 1	10 52.7	43.3	9 25 54.6	3 39.0	21 11 36.0	+ 9 29 33.6
5763	" . . .	8	4 Nov. 28	10 52.4	44.1	9 25 50.2	3 39.9	11 36.5	29 30.1
5764	1 Pegasi e		3 July 9	12 6.1	44.4	18 53 3.7	4 12.2	21 12 50.5	+18 57 15.9
5765	" . . .		3 July 19	12 6.4	44.2	18 53 8.7	4 9.4	12 50.6	57 18.1
5766	" . . .		3 July 23	12 6.2	44.1	18 53 11.8	4 8.5	12 50.3	57 20.3
5767	Lalande 41554 .	7	4 Oct. 15	11		31 42 30.0	3 35.5	21 12	+31 46 5.5
5768	" . . .	7	4 Oct. 16	12 19.9	37.6	31 42 33.8	3 35.5	12 57.5	46 9.3
5769	10 Equulei β	6	4 Oct. 6	12 13.4	44.2	5 54 7.3	3 41.0	21 12 57.6	+ 5 57 48.3
5770	Anonyma . . .	7.8	4 Sept. 28	12 39.0	34.5	39 27 11.4	3 36.2	21 13 13.5	+39 30 47.6
5771	" . . .	7	4 Nov. 17	12 37.7	35.5	39 27 24.7	3 32.4	13 13.2	30 57.1
5772	Lalande 41615,6 .	6.7	4 Oct. 1	13 54.7	43.4	9 15 37.0	3 41.2	21 14 38.1	+ 9 19 18.2
5773	Piazzi 118 . .	6	3 July 26	14 15.3	42.8	+23 21 4.7	4 10.5	21 14 58.1	+23 25 15.2
5774	34 Capricorni ζ		4 Sept. 18	14 22.4	50.9	—23 20 4.2	3 49.9	21 15 13.3	—23 16 14.3
5775	Lalande 41644 .	7	4 Oct. 15	14 40.8	36.0	+36 29 36.8	3 35.8	21 15 16.8	+36 33 12.6
5776	" . . .	7.8	4 Oct. 16	14 41.1	36.0	36 29 37.8	3 35.6	15 17.1	33 13.4
5777	Piazzi 120 . .	7	3 July 9	14 58.8	42.6	25 14 55.5	4 16.1	21 15 41.4	+25 19 11.6
5778	Lalande 41662 .	7	3 July 19	15 4.1	38.4	36 25 43.6	4 15.0	21 15 42.5	+36 29 58.6
5779	" . . .		4 Oct. 15	15 7.0	36.1	36 26 24.1	3 36.4	15 43.1	30 0.5
5780	" . . .	7	4 Oct. 16	15 6.6	36.1	36 26 25.6	3 36.0	15 42.7	30 1.6
5781	Bessel, W.437 .	7.8	4 Sept. 28	15 11.8	37.9	30 1 16.5	3 39.5	21 15 49.7	+30 4 56.0
5782	" . . .	7	4 Nov. 17	15 10.4	38.8	30 1 22.7	3 36.7	15 49.2	4 59.4
5783	" . . .	7	4 Nov. 23	15 9.7	38.8	30 1 20.4	3 36.9	15 48.5	4 57.3
5784	" . . .	7	4 Nov. 28	15 10.0	38.9	30 1 21.8	3 37.4	15 48.9	4 59.2
5785	Lalande 41692 .	8	4 Oct. 6	15 48.4	43.5	9 13 26.5	3 43.1	21 16 31.9	+ 9 17 9.6
5786	69 Cygni . . .	6.7	3 July 19	16 58.6	38.8	35 44 18.9	4 16.9	21 17 37.4	+35 48 35.8
5787	" . . .		3 July 23	16 58.5	38.8	35 44 16.8	4 15.6	17 37.3	48 32.4
5788	" . . .	7	4 Oct. 15	17 1.1	36.4	35 44 55.5	3 37.9	17 37.5	48 33.4
5789	" . . .	7	4 Oct. 16	17 1.0	36.4	35 44 58.3	3 38.0	17 37.4	48 36.3
5790	Lalande 41756 .	6.7	4 Oct. 6	17 49.5	43.9	7 16 12.1	3 45.4	21 18 33.4	+ 7 19 57.5
5791	35 Vulpeculæ .		3 July 26	18 9.4	41.9	26 40 25.2	4 14.5	21 18 51.3	+26 44 39.7
5792	" . . .	6	4 Sept. 28	18 12.6	39.0	26 40 52.1	3 42.3	18 51.6	44 34.4
5793	" . . .	6	4 Oct. 1	18 12.5	39.0	26 41 0.7	3 42.1	18 51.5	44 42.8
5794	" . . .	6	4 Nov. 28	18 11.7	40.0	26 40 58.9	3 40.9	18 51.7	44 39.8
5795	70 Cygni . . .	6	4 Oct. 15	18 36.5	36.3	36 11 32.3	3 39.3	21 19 12.8	+36 15 11.6
5796	" . . .	6	4 Oct. 16	18 36.8	36.3	36 11 30.4	3 39.1	19 13.1	15 9.5
5797	Anonyma . . .	7.8	4 Nov. 17	18 46.8	43.6	11 1 35.4	3 45.2	21 19 30.4	+11 5 20.6
5798	Lalande 41815,6 .		4 Oct. 6	19 34.1	43.0	11 14 9.7	3 45.9	21 20 17.1	+11 17 55.6
5799	2 Pegasi f		3 July 19	20 9.9	43.3	22 41 49.5	4 17.7	21 20 53.2	+22 46 7.2
5800	" . . .		3 July 26	20 9.9	43.2	22 41 54.4	4 15.8	20 53.1	46 10.2
5801	" . . .	6	4 Oct. 1	20 13.5	40.2	+22 42 25.0	3 44.5	20 53.7	46 9.5
5802	22 Aquarii β		3 July 9	20 10.1	50.7	— 6 30 50.5	4 14.5	21 21 0.8	— 6 26 36.0
5803*	" . . .	3	3 Sept. 15	20 10.9	50.3	6 30 42.4	4 8.7	21 1.2	26 33.7
5804	" . . .		4 Sept. 7	20 14.6	46.7	6 30 26.5	3 51.2	21 1.3	26 35.3
5805	" . . .		4 Sept. 14	20 14.0	46.8	6 30 28.7	3 51.0	21 0.8	26 37.7
5806	" . . .		4 Sept. 16	20 14.0	46.8	6 30 26.3	3 51.0	21 0.8	26 35.3
5807*	" . . .		4 Sept. 18	20 14.5	46.8	6 30 25.6	3 51.0	21 1.3	26 34.6
5808	" . . .	3	4 Nov. 23	20 13.8	47.6	— 6 30 28.7	3 52.6	21 1.4	26 36.1
5809	Lalande 41869 .	6.7	4 Oct. 6	20 45.6	43.0	+11 12 6.1	3 46.9	21 21 28.6	+11 15 53.0
5810	" . . .	6.7	4 Nov. 17	21 20 45.3	+ 43.6	+11 12 9.4	+ 3 46.8	21 21 28.9	+11 15 56.2

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5811	71 Cygni g		3 July 23	21 21 30.0	+ 34.7	+45 35 20.2	+ 4 21.3	21 22 4.7	+45 39 41.5
5812	" . . .	6	4 Oct. 15	21 31.8	32.7	45 36 3.8	3 40.5	22 4.5	39 44.3
5813	" . . .	6.7	4 Oct. 16	21 31.6	32.7	45 36 5.9	3 40.3	22 4.3	39 46.2
5814	Piazzi 174 . .	6.7	4 Sept. 28	22 7.7	40.1	22 54 17.9	3 46.4	21 22 47.8	+22 58 4.3
5815	" . . .		4 Oct. 1	22 6.8	40.2	22 54 23.8	3 46.1	22 47.0	58 9.9
5816	Piazzi 178 . .	6.7	3 July 26	22 38.2	43.4	22 26 45.7	4 18.0	21 23 21.6	+22 31 3.7
5817	" . . .	7.8	3 July 27	22 38.1	43.3	22 26 43.7	4 17.7	23 21.4	31 1.4
5818	" . . .	7.8	3 July 29	22 38.3	43.3	+22 26 42.9	4 17.2	23 21.6	31 0.1
5819	37 Capricorni .	6	4 Nov. 23	22 45.6	50.9	—21 2 4.2	3 59.6	21 23 36.5	—20 58 4.6
5820	Bessel, W.671 .	6.7	4 Oct. 6	24 41.4	41.6	+17 22 49.0	3 46.5	21 25 23.0	+17 26 35.5
5821	" . . .	7	4 Nov. 17	24 41.0	42.2	17 22 53.3	3 46.4	25 23.2	26 39.7
5822	2807 Bradley .	6	3 July 19	25 12.6	35.4	44 53 48.2	4 26.0	21 25 48.0	+44 58 14.2
5823	" . . .	7	4 Oct. 15	25 15.5	33.3	44 54 31.6	3 43.6	25 48.8	58 15.2
5824	" . . .	7	4 Oct. 16	25 15.7	33.3	44 54 36.3	3 43.6	25 49.0	58 19.9
5825	" . . .	7	4 Nov. 28	25 14.2	34.3	+44 54 37.0	3 42.1	25 48.5	58 19.1
5826	39 Capricorni ε		3 July 9	24 57.8	54.2	—20 25 28.4	4 15.8	21 25 52.0	—20 21 12.6
5827	" . . .		3 July 12	24 57.6	54.1	20 25 26.1	4 15.7	25 51.7	21 10.4
5828	" . . .		4 Sept. 16	25 1.3	49.8	20 25 8.6	3 57.5	25 51.1	21 11.1
5829	" . . .		4 Sept. 18	25 1.3	49.8	20 25 13.4	3 57.7	25 51.1	21 15.7
5830	" . . .	4	4 Nov. 23	25 1.2	50.7	—20 25 13.6	4 1.3	25 51.9	21 12.3
5831	Piazzi 200 . .	7	3 July 27	25 40.9	43.1	+23 29 39.4	4 20.7	21 26 24.0	+23 34 0.1
5832	" . . .	8	3 July 29	25 40.6	43.1	23 29 40.4	4 20.2	26 23.7	34 0.6
5833	73 Cygni ρ		3 July 19	25 52.1	35.6	44 38 19.5	4 26.5	21 26 27.7	+44 42 46.0
5834	" . . .	6	4 Oct. 15	25 55.2	33.4	44 39 4.2	3 44.2	26 28.6	42 48.4
5835	" . . .	4	4 Nov. 28	25 53.2	34.4	44 39 4.6	3 42.7	26 27.6	42 47.3
5836	72 Cygni . .		3 July 23	25 58.5	38.6	37 34 6.8	4 24.2	21 26 37.1	+37 38 31.0
5837	" . . .		4 Sept. 28	26 0.6	35.8	37 34 43.1	3 47.8	26 36.4	38 30.9
5838	3 Pegasi . . .		3 July 26	26 57.8	47.7	5 39 19.0	4 19.5	21 27 45.5	+ 5 43 38.5
5839	5 Pegasi . . .	6.5	4 Oct. 6	27 42.4	41.5	18 21 39.5	3 51.0	21 28 23.9	+18 25 30.5
5840	Lalande 42153 .	7	4 Oct. 15	27 53.4	33.6	44 25 18.8	3 45.9	21 28 27.0	+44 29 4.7
5841	" . . .	7	4 Oct. 16	27 53.0	33.6	44 25 15.4	3 45.7	28 26.6	29 1.1
5842	4 Pegasi . . .		3 Sept. 15	27 43.6	47.6	4 48 21.2	4 13.2	21 28 31.2	+ 4 52 34.4
5843	74 Cygni . . .		3 July 23	28 18.8	38.0	+39 26 44.0	4 26.5	21 28 56.8	+39 31 10.5
5844	40 Capricorni γ	3.4	4 Sept. 7	28 9.9	49.1	—17 37 26.1	3 59.0	21 28 59.0	—17 33 27.1
5845	" . . .		4 Sept. 16	28 9.4	49.1	17 37 25.3	3 59.2	28 58.5	33 26.1
5846	" . . .		4 Oct. 1	28 9.9	49.2	—17 37 23.0	4 0.0	28 59.1	33 23.0
5847	6 Pegasi . . .		4 Sept. 18	28 38.6	45.1	+ 1 17 9.8	3 56.3	21 29 23.7	+ 1 21 6.1
5848	Groombridge 3512	7	3 July 12	29 4.0	38.7	38 20 51.5	4 30.7	21 29 42.7	+38 25 22.2
5849	" . . .	6.7	3 Aug. 21	29 3.9	38.2	38 21 0.9	4 18.0	29 42.1	25 18.9
5850	Lalande 42200,1	7.8	3 July 27	29 1.6	43.0	24 31 48.1	4 23.9	21 29 44.6	+24 36 12.0
5851	" . . .	7.8	3 July 29	29 1.2	42.9	24 31 46.9	4 23.2	29 44.1	36 10.1
5852*	Groombridge 3514	7	4 Sept. 28	29 14.7	33.7	43 44 19.8	3 50.2	21 29 48.4	+43 48 10.0
5853	Lalande 42240,1	8.9	4 Nov. 28	30 4.0	35.6	42 19 52.7	3 46.3	21 30 39.6	+42 23 39.0
5854	Lalande 42243 .	7	4 Oct. 6	30 2.7	43.5	9 38 46.3	3 54.8	21 30 46.2	+ 9 42 41.1
5855	" . . .	7	4 Nov. 17	30 2.7	44.0	9 38 50.2	3 54.7	30 46.7	42 44.9
5856*	Lalande 42249 .	8.9	3 July 26	30 12.0	48.1	4 2 49.5	4 22.1	21 31 0.1	+ 4 7 11.6
5857	" . . .	7	3 Sept. 15	30 12.2	47.8	4 2 56.0	4 15.6	31 0.0	7 11.6
5858	Groombridge 3529	7	3 July 9	31 7.6	38.8	38 32 17.8	4 33.5	21 31 46.4	+38 36 51.3
5859	Lalande 42273,4	8	3 July 19	31 9.2	42.2	27 46 33.2	4 28.4	21 31 51.4	+27 51 1.6
5860	26 Aquarii . .	6	4 Oct. 1	31 12.2	45.4	0 18 58.3	3 57.8	21 31 57.6	+ 0 22 56.1
5861	Lalande 42287 .	7	3 Sept. 15	31 19.4	47.9	+ 3 51 40.4	4 16.5	21 32 7.3	+ 3 55 56.9
5862	44 Capricorni d^2	6.7	4 Sept. 16	31 20.1	48.5	—15 22 22.7	4 1.2	21 32 8.6	—15 18 21.5
5863	Lalande 42292 .	8	3 July 27	31 26.3	44.0	+20 57 58.1	4 25.4	21 32 10.3	+21 2 23.5
5864	" . . .	7.8	3 July 29	31 25.8	44.0	20 58 2.8	4 24.8	32 9.8	2 27.6
5865	Groombridge 3532	8	4 Oct. 15	31 36.6	34.3	43 28 1.7	3 49.0	21 32 10.9	+43 31 50.7
5866	" . . .	8	4 Oct. 16	31 36.4	34.3	43 28 0.5	3 48.7	32 10.7	31 49.2
5867	7 Pegasi . . .	6	3 July 26	31 27.1	48.0	4 42 13.4	4 23.1	21 32 15.1	+ 4 46 36.5
5868	75 Cygni . . .		3 July 23	31 43.9	37.0	42 17 41.3	4 30.1	21 32 20.9	+42 22 11.4
5869	" . . .	6.7	4 Sept. 28	31 46.3	34.4	42 18 16.6	3 52.3	32 20.7	22 8.9
5870	" . . .	6.7	4 Nov. 28	21 31 44.9	+ 35.7	+42 18 28.5	+ 3 47.5	21 32 20.6	+42 22 16.0

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5871	Lalande 42309,10	8	3 July 27	21 31 39.8	+ 44.1	+20 37 34.6	+ 4 25.6	21 32 23.9	+20 42 0.2
5872	"	7.8	3 July 29	31 40.2	44.1	20 37 34.7	4 25.0	32 24.3	41 59.7
5873	2827 Bradley	6	4 Oct. 6	32 2.9	43.4	9 51 9.8	3 56.2	21 32 46.3	+ 9 55 6.0
5874	"	6	4 Nov. 17	32 2.2	44.0	9 51 9.6	3 56.0	32 46.2	55 5.6
5875	76 Cygni	6	3 Aug. 21	32 54.4	37.9	39 49 48.3	4 17.4	21 33 32.3	+39 54 5.7
5876	77 Cygni	6	3 July 9	33 42.2	38.4	40 5 37.7	4 36.1	21 34 20.3	+40 10 13.8
5877	"	6	3 July 23	33 42.7	38.1	40 5 36.3	4 31.6	34 20.8	10 7.9
5878	"	6	3 Aug. 21	33 42.3	37.8	40 5 47.4	4 22.0	34 20.1	10 9.4
5879	8 Pegasi ε		3 Sept. 15	33 35.2	46.8	8 53 35.3	4 17.7	21 34 22.0	+ 8 57 53.0
5880	"		4 Sept. 16	(33)		8 53 56.1	3 59.1	(34)	57 55.2
5881	"		4 Oct. 1	(33)		8 53 53.6	3 57.9	(34)	57 53.5
5882	"	2.3	4 Oct. 6	33 38.0	43.7	8 53 54.9	3 57.7	34 21.7	57 52.6
5883	"	3	4 Oct. 9	33 38.1	43.7	8 53 53.5	3 57.6	34 21.8	57 51.1
5884	Lalande 42379	7	4 Oct. 15	33 56.4	33.9	44 47 39.1	3 50.6	21 34 30.3	+44 51 29.7
5885	"	7.8	4 Oct. 16	33 56.8	33.9	44 47 38.2	3 50.4	34 30.7	51 28.6
5886	9 Pegasi g		3 July 27	34 17.5	45.3	16 21 50.1	4 27.2	21 35 2.8	+16 26 17.3
5887	"	4.5	3 July 29	34 17.4	44.5	16 21 52.7	4 26.8	35 1.9	26 19.5
5888	2841 Bradley	6	3 July 9	34 26.3	38.4	40 10 14.7	4 36.6	21 35 4.7	+40 14 51.3
5889	"		3 July 23	34 26.6	38.1	40 10 11.3	4 32.2	35 4.7	14 43.5
5890	"	6	3 Aug. 21	34 27.0	37.8	40 10 25.8	4 22.8	35 4.8	14 48.6
5891	"	7	4 Sept. 28	34 29.7	35.4	40 10 46.9	3 54.4	35 5.1	14 41.3
5892	78 Cygni μ^1		3 July 19	34 29.4	42.4	27 46 14.2	4 31.3	21 35 11.8	+27 50 45.5
5893*	Piazzi 267	6.7	3 July 19	34 44.9	42.4	+27 47 46.2	4 31.4	21 35 27.3	+27 52 17.6
5894	48 Capricorni λ		4 Sept. 7	34 57.3	47.8	—12 20 54.2	4 3.5	21 35 45.1	—12 16 50.7
5895*	"		4 Sept. 18	34 57.7	47.8	12 20 54.7	4 3.6	35 45.5	16 51.1
5896	"	5	4 Nov. 23	34 56.5	48.6	—12 20 45.5	4 6.2	35 45.1	16 39.3
5897	Johnson 5380	7.8	4 Oct. 15	36 17.8	33.6	+45 52 51.6	3 52.4	21 36 51.4	+45 56 44.0
5898	"	7.8	4 Oct. 16	36 17.8	33.6	45 52 56.8	3 52.2	36 51.4	56 49.0
5899	12 Pegasi	6	3 July 12	36 9.0	44.2	21 57 21.6	4 33.5	21 36 53.2	+22 1 55.1
5900	"		3 July 26	36 8.7	43.9	21 57 30.6	4 29.7	36 52.6	2 0.3
5901	11 Pegasi		3 Sept. 15	36 17.7	48.3	1 41 43.7	4 20.8	21 37 6.0	+ 1 46 4.5
5902	"		4 Sept. 16	36 20.3	45.0	1 42 5.7	4 2.2	37 5.3	46 7.9
5903*	Lalande 42464,5	7	4 Oct. 1	36 23.8	42.8	12 44 9.0	3 59.2	21 37 6.6	+12 48 8.2
5904	"	7	4 Oct. 6	36 23.7	42.9	12 44 6.0	3 58.9	37 6.6	48 4.9
5905	"	7	4 Nov. 17	36 23.9	43.4	12 44 6.7	3 58.5	37 7.3	48 5.2
5906	2853 Bradley	7.8	3 July 27	36 48.2	45.4	16 12 5.8	4 29.1	21 37 33.6	+16 16 34.9
5907	"	6.7	3 July 29	36 48.9	45.3	16 12 7.0	4 29.6	37 34.2	16 36.6
5908	Groombridge 3565	7	3 July 9	37 42.6	37.9	42 3 48.1	4 39.9	21 38 20.5	+42 8 28.0
5909	"	7.8	3 July 23	37 43.2	37.6	+42 3 48.8	4 35.3	38 20.8	8 24.1
5910	902 Mayer	7.8	4 Sept. 14	38 3.0	48.0	—13 42 57.4	4 5.9	21 38 51.0	—13 38 51.5
5911	81 Cygni π^2		3 Aug. 21	38 50.7	34.5	+48 18 49.9	4 27.2	21 39 25.2	+48 23 17.1
5912	"	5	4 Oct. 9	38 52.5	32.5	48 19 21.1	3 55.3	39 25.0	23 16.4
5913	"	6.5	4 Oct. 15	38 52.5	32.7	48 19 20.8	3 54.1	39 25.2	23 14.9
5914	"	6	4 Oct. 16	38 52.7	32.7	48 19 22.6	3 53.9	39 25.4	23 16.5
5915	Lalande 42549	7.8	4 Oct. 1	39 5.3	42.4	14 46 9.2	4 0.9	21 39 47.7	+14 50 10.1
5916	"	7	4 Oct. 6	39 4.9	42.5	14 46 9.1	4 0.6	39 47.4	50 9.7
5917	Lalande 42559	7	4 Sept. 28	39 25.1	41.4	19 28 8.5	4 6.6	21 40 6.5	+19 32 15.1
5918*	13 Pegasi	6.7	3 July 12	39 52.7	45.7	16 17 5.2	4 35.4	21 40 38.4	+16 21 40.6
5919	"		3 July 19	39 52.2	45.6	16 17 7.6	4 33.7	40 37.8	21 41.3
5920	"		3 July 26	39 52.7	45.4	16 17 14.5	4 31.9	40 38.1	21 46.4
5921	"		3 July 27	39 52.4	45.4	16 17 10.6	4 31.7	40 37.8	21 42.3
5922	"		3 July 29	39 52.4	45.4	16 17 16.0	4 31.2	40 37.8	21 47.2
5923	"		4 Sept. 16	39 55.8	41.9	16 17 43.9	4 3.0	40 37.7	21 46.9
5924	14 Pegasi		3 Sept. 15	40 19.4	41.9	29 10 33.8	4 21.4	21 41 1.3	+29 14 55.2
5925	"	7	4 Sept. 28	40		29 10 51.9	4 0.0	41	14 51.9
5926	Johnson 5408	8.9	3 July 9	40 53.8	38.9	40 8 36.2	4 42.1	21 41 32.7	+40 13 18.3
5927	"	7	4 Nov. 17	40 56.0	36.7	40 9 24.2	3 54.4	41 32.7	13 18.6
5928	Piazzi 312	6.7	3 July 12	41 25.8	45.2	18 49 4.4	4 37.2	21 42 11.0	+18 53 41.6
5929	"	6.7	4 Oct. 6	41 28.5	41.6	+18 49 41.1	4 1.6	42 10.1	53 42.7
5930	51 Capricorni μ		4 Sept. 7	21 41 33.9	+ 48.1	—14 33 14.8	+ 4 8.5	21 42 22.0	—14 29 6.3

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5931*	51 Capricorni μ		4 Sept. 14	21 41 34.2	+ 48.1	−14 33 22.3	+ 4 8.6	21 42 22.3	−14 29 13.7
5932	Groombridge 3584	7	4 Oct. 9	42 13.1	36.5	+38 32 17.3	3 58.8	21 42 49.6	+38 36 16.1
5933	" . . .	7	4 Oct. 15	42 13.0	36.7	38 32 16.6	3 57.8	42 49.7	36 14.4
5934	" . . .	7	4 Oct. 16	42 12.7	36.7	38 32 18.6	3 57.6	42 49.4	36 16.2
5935	15 Pegasi . .		3 Aug. 21	42 52.3	42.4	27 47 15.4	4 29.1	21 43 34.7	+27 51 44.5
5936	" . . .		3 Sept. 15	42 52.6	42.4	27 47 21.3	4 23.4	43 35.0	51 44.7
5937	" . . .	6	4 Sept. 16	42 55.6	39.4	27 47 44.4	4 4.4	43 35.0	51 48.8
5938	16 Pegasi . .		3 July 27	43 14.4	43.4	24 54 49.4	4 35.9	21 43 57.8	+24 59 25.3
5939	" . . .	6.5	3 July 29	43 14.4	43.4	24 54 49.0	4 35.3	43 57.8	59 24.3
5940	Lalande 42690,1 .	6	3 July 19	43 27.7	45.1	18 39 12.0	4 37.0	21 44 12.8	+18 43 49.0
5941*	" . . .	6.7	4 Sept. 28	43 31.9	41.6	18 39 43.1	4 3.9	44 13.5	43 47.0
5942	" . . .	6.7	4 Oct. 1	43 31.5	41.6	18 39 50.3	4 3.7	44 13.1	43 54.0
5943	" . . .	6.7	4 Oct. 6	43 31.1	41.7	18 39 48.1	4 3.1	44 12.8	43 51.2
5944	Lalande 42708,9	6	3 July 19	44 8.7	45.1	18 42		21 44 53.8	+18 46 -
5945	" . . .	7	4 Oct. 1	44 12.4	41.7	18 42 45.5	4 3.9	44 54.1	46 49.4
5946	" . . .	7.8	4 Oct. 6	44 12.0	41.7	18 42 46.8	4 3.6	44 53.7	46 50.4
5947	Lalande 42712,3	7.8	3 July 9	44 15.7	43.2	27 19 56.4	4 42.2	21 44 58.9	+27 24 38.6
5948	" . . .	8.9	3 July 12	44 16.0	43.1	27 19 47.9	4 41.5	44 59.1	24 29.4
5949	" . . .	7	3 July 23	44 16.4	42.9	27 19 57.1	4 38.2	44 59.3	24 35.3
5950	" . . .	7	4 Nov. 17	44 18.8	40.4	27 20 33.2	3 59.8	44 59.2	24 33.0
5951	Lalande 42743 .	7.8	4 Oct. 9	45 17.1	41.5	19 50 21.8	4 3.9	21 45 58.6	+19 54 25.7
5952	Lalande 42756 .	8.9	3 July 27	45 40.7	41.0	33 45 17.9	4 39.4	21 46 21.7	+33 49 57.3
5953	" . . .	9	3 July 29	45 40.6	41.0	33 45 19.6	4 37.6	46 21.6	49 57.2
5954	" . . .	7.8	3 Sept. 15	45 41.4	40.8	33 45 33.1	4 25.3	46 22.2	49 58.4
5955	Piazzi 337 . .	7.8	4 Oct. 15	46 11.9	37.9	35 8 14.3	4 1.1	21 46 49.8	+35 12 15.4
5956	" . . .	7.8	4 Oct. 16	46 11.7	37.9	35 8 18.4	4 0.9	46 49.6	12 19.3
5957	17 Pegasi . .		3 July 23	46 23.9	46.8	11 3 17.0	4 37.0	21 47 10.7	+11 7 54.0
5958	" . . .		3 July 26	46 24.0	46.8	11 3 22.3	4 36.3	47 10.8	7 58.6
5959	" . . .		3 Aug. 21	46 24.3	46.4	11 3 24.7	4 31.2	47 10.7	7 55.9
5960*	" . . .	6	4 Oct. 6	46 28.3	43.3	11 3 42.0	4 6.7	47 11.6	7 48.7
5961	Lalande 42836 .	8.9	4 Nov. 17	47 33.8	42.2	+19 17 14.9	4 4.4	21 48 16.0	+19 21 19.3
5962	Lalande 42846 .	7.8	3 July 12	47 37.9	50.4	− 5 23 4.1	4 36.5	21 48 28.3	− 5 18 27.6
5963*	Lalande 42849 .	8.9	3 July 9	47 49.0	43.1	+28 17 19.2	4 45.2	21 48 32.1	+28 22 4.4
5964	Lalande 42867 .	7.8	4 Oct. 15	48 51.2	33.7	47 39 9.0	4 1.5	21 49 24.9	+47 43 10.5
5965*	Bessel, W.1274 .	6	3 July 19	48 45 2	45.3	17 59 37.4	4 41.0	21 49 30.5	+18 4 18.4
5966	Lalande 42883,5 .	7.8	3 July 27	49 8.4	42.6	28 48 27.4	4 41.2	21 49 51.0	+28 53 8.6
5967	" . . .	9	3 July 29	49 8.4	42.6	28 48 27.8	4 40.5	49 51.0	53 8.3
5968	" . . .	8	4 Sept. 16	49 11.3	39.4	28 48 53.9	4 8.8	49 50.7	53 2.7
5969	" . . .	9	4 Oct. 9	49 11.2	39.6	28 49 3.4	4 5.0	49 50.8	53 8.4
5970	18 Pegasi . .	6	3 July 26	49 20.6	47.9	5 41 20.0	4 37.6	21 50 8.5	+ 5 45 57.6
5971	" . . .		3 Sept. 15	49 21.6	47.6	5 41 22.5	4 30.5	50 9.2	45 53.0
5972	" . . .	6	4 Sept. 28	49 24.4	44.3	5 41 38.7	4 10.2	50 8.7	45 48.9
5973	" . . .	6	4 Oct. 6	49 23.5	44.4	+ 5 41 42.7	4 9.8	50 7.9	45 52.5
5974	28 Aquarii . .	7	3 July 12	50 1.2	49.4	− 0 25 37.7	4 39.6	21 50 50.6	− 0 20 58.1
5975	" . . .	6	3 July 23	50 2.3	49.2	0 25 33.3	4 37.6	50 51.5	20 55.7
5976	" . . .	6	4 Oct. 16.	(49)		− 0 25 9.5	4 11.5	(50)	20 58.0
5977	20 Pegasi . .		3 Aug. 21	50 33.9	46.3	+12 5 26.2	4 34.4	21 51 20.2	+12 10 0.6
5978	Lalande 42943 .	6.7	4 Nov. 17	51 0.8	39.5	31 58 46.9	4 3.2	21 51 40.3	+32 2 50.1
5979	Lalande 42947 .	8	3 July 27	51 12.0	42.3	+30 25 5.2	4 43.0	21 51 54.3	+30 29 48.2
5980	31 Aquarii o	6	3 July 23	52 8.6	49.7	− 3 11 33.4	4 38.6	21 52 58.3	− 3 6 54.8
5981	" . . .	6.5	4 Oct. 6	52 11.8	46.0	− 3 11 7.4	4 13.8	52 57.8	6 53.6
5982	Lalande 42989 .	7.8	3 July 29	52 15.4	46.0	+14 57 1.0	4 40.6	21 53 1.4	+15 1 41.6
5983*	" . . .	7	4 Sept. 16	52 18.8	42.5	14 57 27.9	4 12.1	53 1.3	1 40.0
5984	Bessel, W.1299 .	8	3 July 29	52 31.2	46.0	14 48		21 53 17.2	+14 52
5985	21 Pegasi . .		3 July 26	52 43.0	47.0	10 20 52.5	4 41.0	21 53 30.0	+10 25 33.5
5986	Lalande 43012 .	7.8	3 Sept. 15	52 56.2	48.0	+ 3 45 8.2	4 33.2	21 53 44.2	+ 3 49 41.4
5987	32 Aquarii . .		3 July 12	53 40.7	49.7	− 1 56 44.7	4 41.9	21 54 30.4	− 1 52 2.8
5988	" . . .		3 July 19	53 40.3	49.6	1 56 44.4	4 40.5	54 29.9	52 3.9
5989	" . . .		3 July 23	53 40.9	49.5	− 1 56 42.5	4 40.0	54 30.4	52. 2.5
5990	Lalande 43037,8 .	7	4 Sept. 28	21 53 56.3	+ 43.7	+ 9 12 23.9	+ 4 12.6	21 54 40.0	+ 9 16 36.5

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0	
								α	δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
5991	Groombridge 3655	7	4 Oct. 9	21 54 17.5	+ 35.5	+43 37 15.3	+ 4 6.8	21 54 53.0	+43 41 22.1
5992	" . . .	7	4 Nov. 17	54 16.8	36.4	+43 37 19.7	4 2.8	54 53.2	41 22.5
5993	34 Aquarii α		3 July 9	(54)		— 1 21 51.5	4 43.4	21(55)	— 1 17 8.1
5994	" . . .		3 July 19	54 41.0	49.5	1 21 47.4	4 41.4	55 30.5	17 6.0
5995	" . . .		3 July 23	(54)		1 21 48.5	4 41.0	(55)	17 7.5
5996	" . . .		4 Sept. 7	54 44.9	45.5	1 21 21.7	4 16.1	55 30.4	17 5.6
5997	" . . .	3	4 Oct. 6	54 44.7	45.6	1 21 22.2	4 15.0	55 30.3	17 7.2
5998	" . . .	3	4 Oct. 16	54 44.5	45.7	— 1 21 21.8	4 15.1	55 30.2	17 6.7
5999	22 Pegasi ν		3 Aug. 21	54 47.1	48.0	+ 4 0 35.0	4 37.2	21 55 35.1	+ 4 5 12.2
6000	" . . .		3 Sept. 15	54 48.2	47.9	+ 4 0 37.8	4 34.5	55 36.1	5 12.3
6001	33 Aquarii ι	5	4 Sept. 14	54 49.3	47.9	—14 54 17.9	4 17.5	21 55 37.2	—14 50 0.4
6002	" . . .	4	4 Sept. 16	54 49.2	47.9	—14 54 16.7	4 17.5	55 37.1	49 59.2
6003	Lalande 43073 .		3 July 27	55 2.7	42.1	+31 53 54.4	4 46.2	21 55 44.8	+31 58 40.6
6004	23 Pegasi . .		3 July 26	55 48.2	43.2	27 55 9.6	4 46.4	21 56 31.4	+27 59 56.0
6005	Bessel, W.1391 .	7.8	4 Oct. 6	56 54.4	43.9	8 37 43.3	4 14.2	21 57 38.3	+ 8 41 57.5
6006*	" . . .	8	4 Nov. 17	56 53.5	44.4	8 37 40.7	4 13.9	57 37.9	41 54.6
6007	24 Pegasi ι		3 Aug. 21	56 57.7	43.8	+24 17 45.9	4 39.6	21 57 41.5	+24 22 25.5
6008	Lalande 43146,7 .	6.7	4 Nov. 23	57 3.6	48.1	—12 39 27.5	4 21.8	21 57 51.7	—12 35 5.7
6009*	Groombridge 3679	6.7	3 July 29	57 19.2	38.3	+43 57 59.9	4 49.3	21 57 57.5	+44 2 49.2
6010	Piazzi 406 . .	6.7	3 July 12	57 11.9	45.8	+18 25 17.2	4 49.1	21 57 57.7	+18 30 6.3
6011	35 Aquarii . .	6	4 Oct. 16	57 10.3	48.9	—19 33 50.8	4 21.8	21 57 59.2	—19 29 29.0
6012	25 Pegasi . .	6	3 Sept. 15	57 42.5	44.6	+20 39 30.5	4 35.1	21 58 27.1	+20 44 5.6
6013	Piazzi 417 . .	6.7	3 July 19	58 10.4	48.9	+ 1 40 54.5	4 44.4	21 58 59.3	+ 1 45 38.9
6014	38 Aquarii e	6	4 Nov. 23	59 7.2	48.1	—12 36 50.9	4 23.1	21 59 55.3	—12 32 27.8
6015	" . . .		4 Sept. 16	59 7.7	47.4	12 36 50.7	4 20.0	59 55.1	32 30.7
6016	" . . .	6	4 Oct. 16	(59)		—12 36 56.8	4 21.1	(59)	32 35.7
6017	26 Pegasi θ		3 July 23	59 18.4	48.2	+ 5 8 25.9	4 45.4	22 0 6.6	+ 5 13 11.3
6018*	" . . .		4 Sept. 7	59 21.4	44.4	5 8 53.6	4 18.6	0 5.8	13 12.2
6019	27 Pegasi . .	6	3 July 26	59 40.6	42.3	32 7 14.4	4 50.0	22 0 22.9	+32 12 4.4
6020	" . . .	6	3 Aug. 21	21 59 41.0	42.0	32 7 18.4	4 42.3	0 23.0	12 0.7
6021	Lalande 43255 .	7.8	3 July 12	22 0 1.9	45.8	18 33 46.2	4 51.2	22 0 47.7	+18 38 37.4
6022	" . . .	7.6	4 Oct. 6	0 5.3	42.1	18 34 24.6	4 14.5	0 47.4	38 39.1
6023	" . . .	6.7	4 Nov. 17	0 4.9	42.6	18 34 24.9	4 12.5	0 47.5	38 37.4
6024	28 Pegasi . .		3 Sept. 15	0 19.1	44.9	19 55 28.3	4 36.9	22 1 4.0	+20 0 5.2
6025*	29 Pegasi π		3 July 26	0 24.8	42.3	32 7 20.4	4 50.5	22 1 7.1	+32 12 10.9
6026	" . . .		3 July 27	0 24.6	42.3	32 7 18.3	4 50.3	1 6.9	12 8.6
6027	" . . .	4.5	3 Aug. 21	0 25.1	42.0	32 7 23.6	4 42.9	1 7.1	12 6.5
6028	Piazzi 15 . .	6.7	3 July 19	1 25.7	46.4	+14 58 49.7	4 49.6	22 2 12.1	+15 3 39.3
6029*	40 Aquarii . .	8	4 Oct. 16	1 56.6	47.6	—12 59 1.6	4 22.8	22 2 44.2	—12 54 38.8
6030	Groombridge 3700	7.8	3 July 29	2 5.8	39.4	+41 58 9.5	4 52.6	22 2 45.2	+42 3 2.1
6031	Lalande 43331 .	8.9	3 July 12	2 6.0	44.7	23 53 11.6	4 53.9	22 2 50.7	+23 58 5.5
6032	Piazzi 29 . . .	6.7	3 July 26	3 14.7	42.2	33 32 33.0	4 52.7	22 3 56.9	+33 37 25.7
6033	Piazzi 32 . . .	8	3 July 12	3 45.8	44.0	27 32 26.3	4 56.0	22 4 29.8	+27 37 22.3
6034	Piazzi 33 . . .	6.7	3 July 9	3 56.2	46.5	16 7 33.8	4 54.1	22 4 42.7	+16 12 27.9
6035	1 (Hev.) Lacertæ	5	3 July 23	4 38.1	40.8	38 38 39.7	4 55.7	22 5 18.9	+38 43 35.4
6036	" . . .	6	3 Aug. 21	4 38.1	40.9	38 38 49.7	4 46.4	5 19.0	43 36.1
6037	Lalande 43417 .	7	4 Oct. 6	4 42.4	41.6	21 27 53.7	4 16.9	22 5 24.0	+21 32 10.6
6038	" . . .	7	4 Nov. 17	4 41.7	42.2	21 27 51.4	4 14.9	5 23.9	32 6.3
6039	" . . .	7	4 Nov. 23	4 41.7	42.3	21 27 55.6	4 15.1	5 24.0	32 10.7
6040*	Piazzi 39 . . .	7	3 Sept. 15	4 42.8	44.3	23 14 55.0	4 39.8	22 5 27.1	+23 19 34.8
6041	Lalande 43420,1	7.8	3 July 19	4 44.6	43.6	28 30 17.8	4 54.9	22 5 28.2	+28 35 12.7
6042	Groombridge 3717	6.7	3 July 29	4 57.7	38.8	+44 22 14.5	4 55.0	22 5 36.5	+44 27 9.5
6043	43 Aquarii θ		4 Sept. 16	5 29.1	46.6	— 8 50 41.7	4 23.2	22 6 15.7	— 8 46 18.5
6044	1 Lacertæ . .	5	3 July 23	6 34.6	41.5	+36 40 27.3	4 56.8	22 7 16.1	+36 45 24.1
6045	" . . .		3 July 26	6 34.3	41.5	36 40 31.4	4 55.8	7 15.8	45 27.2
6046	" . . .		3 July 27	6 34.0	41.4	36 40		7 15.4	45
6047	" . . .	5.6	3 Aug. 21	6 34.9	41.1	36 40 37.7	4 48.4	7 16.0	45 26.1
6048	Lalande 43495 .	10	3 July 12	6 31.1	45.4	21 49 24.3	4 56.6	22 7 16.2	+21 54 20.9
6049	" . . .	7.8	4 Nov. 17	6 34.0	42.2	21 50 0.2	4 15.8	7 16.2	54 16.0
6050	Bessel, W.246 .	7.8	4 Nov. 23	22 7 2.1	+ 42.4	+21 19 29.0	+ 4 16.4	22 7 44.5	+21 23 45.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6051	Lalande 43518 .	7	3 July 9	22 6 59.5	+ 49.7	− 1 18 36.3	+ 4 51.7	22 7 49.2	− 1 13 44.6
†6052		7.8	3 Sept. 15	8 24.5	44.0	+25 17 15.3	4 42.0	22 9 8.5	+25 21 57.3
6053	46 Aquarii ρ	6	4 Sept. 16	8 52.5	46.6	− 8 53 35.7	4 25.2	22 9 39.1	− 8 49 10.5
6054	Piazzi 65 . . .	8	3 July 12	9 29.2	42.0	+36 41 5.0	5 2.0	22 10 11.2	+36 46 7.0
6055	" . . .	6.7	3 July 29	9 29.4	41.6	36 41 12.6	4 56.8	10 11.0	46 9.4
6056	30 Pegasi . .		3 Sept. 15	9 36.4	47.9	4 42 39.3	4 39.9	22 10 24.3	+ 4 47 19.2
6057	Piazzi 69 . . .	7	3 July 26	10 8.5	46.9	+12 57 5.1	4 53.4	22 10 55.4	+13 1 58.5
6058	48 Aquarii γ		3 July 9	10 29.9	49.9	− 2 28 17.4	4 53.6	22 11 19.8	− 2 23 21.6
6059	" . . .		3 July 19	10 29.3	49.7	− 2 28 12.8	4 51.8	11 19.0	23 21.0
6060	31 Pegasi . .		3 Aug. 21	10 53.3	46.8	+11 7 16.5	4 48.3	22 11 40.1	+11 12 4.8
6061	Piazzi 76 . . .	6.7	4 Oct. 9	11 2.0	41.0	25 51 38.5	4 19.7	22 11 43.0	+25 55 58.2
6062	" . . .	6	4 Nov. 17	11 1.7	41.6	+25 51 41.9	4 17.3	11 43.3	55 59.2
6063	Lalande 43654 .	7	4 Oct. 16	11 47.0	47.9	−16 1 21.2	4 29.5	22 12 34.9	−15 56 51.7
6064	2 Lacertæ . .		3 July 23	12 7.6	39.2	+45 26 51.6	5 2.2	22 12 46.8	+45 31 53.8
6065	Lalande 43680 . .	7.8	3 July 12	12 34.6	41.4	39 34 42.9	5 4.8	22 13 16.0	+39 39 47.7
6066	" . . .	7.8	3 July 29	12 34.4	41.0	+39 34 42.5	4 59.5	13 15.4	39 42.0
6067	50 Aquarii . .	6	4 Oct. 16	12 55.8	47.6	−14 36 45.4	4 29.6	22 13 43.4	−14 32 15.8
6068	33 Pegasi . .		3 Sept. 15	13 16.5	45.2	+19 45 50.7	4 45.5	22 14 1.7	+19 50 36.2
6069	" . . .	6	4 Oct. 9	13 20.3	42.2	19 46 7.6	4 21.6	14 2.5	50 29.2
6070	" . . .	6	4 Nov. 17	13 19.5	42.7	19 46 9.3	4 20.3	14 2.2	50 29.6
6071	" . . .	6	4 Nov. 23	13 19.6	42.8	19 46 11.9	4 20.5	14 2.4	50 32.4
6072	Lalande 43729 .	7	3 July 26	13 29.1	46.7	+14 11 34.0	4 55.8	22 14 15.8	+14 16 29.8
6073	923 Mayer . .	7	3 July 9	13 26.8	49.9	− 2 16 43.3	4 55.4	22 14 16.7	− 2 11 47.9
6074	Piazzi 97 . . .	7	3 July 26	15 15.8	46.2	+17 20 58.7	4 57.5	22 16 2.0	+17 25 56.2
6075	" . . .	7	4 Oct. 9	15 19.2	42.7	17 21 29.1	4 23.7	16 1.9	25 52.8
6076	" . . .	6	4 Nov. 17	15 19.2	43.1	17 21 28.7	4 22.3	16 2.8	25 51.0
6077	" . . .		4 Nov. 23	15 19.1	43.2	17 21 30.7	4 22.3	16 2.3	25 53.0
6078	4 Lacertæ . .		3 July 23	15 47.6	38.4	48 22 48.0	5 5.2	22 16 26.0	+48 27 53.2
6079	" . . .	6.5	3 Aug. 21	15 48.2	38.0	48 22 59.2	4 55.2	16 26.2	27 54.4
6080	34 Pegasi . .		3 Sept. 15	15 38.7	48.1	3 17 56.8	4 48.1	22 16 26.8	+ 3 22 44.9
6081	" . . .	6	4 Sept. 16	15 41.3	44.7	3 18 18.8	4 27.7	16 26.0	22 46.5
6082	35 Pegasi . .		3 Sept. 15	16 56.4	48.1	3 37 9.3	4 49.0	22 17 44.5	+ 3 41 58.3
6083	Lalande 43859 .	7	3 July 12	17 11.5	42.6	36 20 39.7	5 6.7	22 17 54.1	+36 25 46.4
6084	" . . .	7.8	3 July 29	17 11.8	42.2	+36 20 44.2	5 1.7	17 54.0	25 45.9
6085	55 Aquarii ζ		3 July 9	17 42.1	49.7	− 1 7 14.6	4 58.3	22 18 31.8	− 1 2 16.3
6086	" . . .		3 July 19	17 42.7	49.5	− 1 7 15.5	4 56.3	18 32.2	2 19.2
6087	Lalande 43891 .	7	4 Oct. 9	18 6.3	41.7	+23 42 9.1	4 24.2	22 18 48.0	+23 46 33.3
6088	" . . .	7	4 Nov. 17	18 6.2	42.2	23 42 11.5	4 21.6	18 48.4	46 33.1
6089	" . . .		4 Nov. 23	18 5.8	42.2	23 42 24.0	4 22.0	18 48.0	46 46.0
6090	Lalande 43893 .	6	3 July 27	18 6.6	44.7	25 55 20.9	5 0.9	22 18 51.3	+26 0 21.8
6091*	36 Pegasi . .		4 Oct 2	18 25.0	44.1	8 2 13.0	4 27.4	22 19 9.1	+ 8 6 40.4
6092	Lalande 43914,5 .	7.8	3 July 12	18 51.2	40.9	43 1 2.1	5 9.5	22 19 32.1	+43 6 11.6
6093	Piazzi 120 . .	6	3 July 26	19 3.6	44.8	25 39 44.0	5 1.6	22 19 48.4	+25 44 45.6
6094	37 Pegasi . .		3 Sept. 15	19 3.6	48.1	3 20 28.3	4 50.1	22 19 51.7	+ 3 25 18.4
6095	" . . .	6	4 Sept. 16	19 6.2	44.7	+ 3 20 47.3	4 29.5	19 50.9	25 16.8
6096	57 Aquarii σ	6	4 Oct. 16	19 15.8	47.0	−11 46 19.7	4 32.1	22 20 2.8	−11 41 47.6
6097	Piazzi 127 . .	7.8	4 Sept. 16	19 48.2	44.8	+ 3 14 23.1	4 29.9	22 20 33.0	+ 3 18 53.0
6098	38 Pegasi . .		3 Aug. 21	20 10.8	43.2	+31 28 18.2	4 55.9	22 20 54.0	+31 33 14.1
6099	Lalande 43981 .	6	3 July 27	20 7.5	49.7	− 4 0 44.5	4 55.9	22 20 57.2	− 3 55 48.6
6100	5 Lacertæ . .		3 July 12	20 33.1	39.8	+46 36 0.1	5 11.3	22 21 12.9	+46 41 11.4
6101	" . . .		3 July 23	20 33.7	39.6	46 36 0.6	5 7.7	21 13.3	41 8.3
6102	6 Lacertæ . .	6.5	3 July 29	21 11.7	40.9	42 1 0.3	5 5.3	22 21 52.6	+42 6 5.6
6103	Piazzi 139 . .	6.5	3 July 9	21 34.2	44.8	28 26 9.0	5 8.5	22 22 19.0	+28 31 17.5
6104	" . . .	6.7	3 July 26	21 34.5	44.4	28 26 17.3	5 3.6	22 18.9	31 20.9
6105	" . . .	7.6	4 Oct. 9	21 37.8	40.9	28 26 53.2	4 25.5	22 18.7	31 18.7
6106	" . . .	6.7	4 Nov. 17	21 37.3	41.4	28 26 59.3	4 22.4	22 18.7	31 21.7
6107	39 Pegasi . .		3 Sept. 15	22 10.5	45.6	19 7		22 22 56.1	+19 12
6108	" . . .		4 Oct. 2	22 13.3	42.5	19 7 44.8	4 27.9	22 55.8	12 12.7
6109	7 Lacertæ . .		3 Aug. 21	22 27.4	38.3	+49 10 27.2	4 59.4	22 23 5.7	+49 15 26.6
6110	Piazzi 142 . .	7	4 Oct. 16	22 22 46.5	+ 46.8	−10 42 38.5	+ 4 33.7	22 23 33.3	−10 38 4.8

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6111	Groombridge 3804	6.7	4 Oct. 9	22 22 58.5	+ 38.8	+38 40 53.0	+ 4 25.2	22 23 37.3	+38 45 18.2
6112	59 Aquarii υ		3 July 19	22 51.2	52.6	—21 48 30.0	4 54.9	22 23 43.8	—21 43 35.1
6113	Groombridge 3810	7	3 July 9	24 5.5	42.3	+39 42 26.8	5 12.2	22 24 47.8	+39 47 39.0
6114*	" . . .	7.8	3 July 12	24 5.5	42.2	39 42 18.9	5 11.9	24 47.7	47 30.8
6115	" . . .	7.8	4 Sept. 16	24 8.3	38.4	+39 42 59.2	4 31.0	24 46.7	47 30.2
6116	62 Aquarii η		3 July 23	24 15.1	49.4	— 1 13 37.4	4 59.5	22 25 4.5	— 1 8 37.9
6117	Lalande 44146 .	7	3 July 27	24 46.6	44.4	+28 50 35.2	5 5.2	22 25 31.0	+28 55 40.4
6118	Groombridge 3815	7	3 July 9	25 0.3	42.4	39 39 36.5	5 13.4	22 25 42.7	+39 44 49.9
6119*	" . . .	8.9	3 July 12	24 59.8	42.3	39 39 32.8	5 12.5	25 42.1	44 45.3
6120	" . . .	8	3 July 29	25 0.2	41.9	39 39 37.3	5 7.2	25 42.1	44 44.5
6121*	Piazzi 158 . .	7	3 Sept. 15	25 25.6	45.7	19 10 8.3	4 52.8	22 26 11.3	+19 15 1.1
6122	Comp. 8 Lacertæ	7.8	4 Oct. 9	26 20.0	39.1	+38 31 23.4	4 26.9	22 26 59.1	+38 35 50.3
6123	8 Lacertæ . .	6.7	3 July 29	26 17.4	42.3	38 31 8.9	5 7.6	22 26 59.7	+38 36 16.5
6124	" . . .	6.7	3 Aug. 21	26 17.1	42.0	+38 31 13.8	5 0.3	26 59.1	36 14.1
6125	63 Aquarii κ		4 Oct. 2	26 38.1	46.0	— 5 19 52.5	4 34.0	22 27 24.1	— 5 15 18.5
6126	" . . .	6.5	4 Oct. 16	26 37.4	46.1	— 5 19 47.7	4 34.1	27 23.5	15 13.6
6127*	Lalande 44221 .	6.7	4 Sept. 16	27 4.8	39.8	+34 32 38.6	4 32.4	22 27 44.6	+34 37 11.0
6128	Lalande 44250,1 .	8.9	3 July 19	27 39.2	48.2	8 8 23.6	5 4.2	22 28 27.4	8 13 27.8
6129	Lalande 44252,3 .	7	3 July 9	27 48.3	42.1	41 41 17.9	5 15.5	22 28 30.4	+41 46 33.4
6130	40 Pegasi . .		3 July 23	28 26.1	46.5	18 24 23.7	5 6.2	22 29 12.6	+18 29 29.9
6131	" . . .	6.7	3 Sept. 15	28 26.9	45.9	18 24 36.1	4 54.5	29 12.8	29 30.6
6132	" . . .		4 Nov. 23	28 28.2	43.3	18 25 3.4	4 28.8	29 11.5	29 32.2
6133*	Piazzi 177 . .	6.7	3 July 12	28 58.3	41.5	44 3 30.5	5 15.8	22 29 39.8	+44 8 46.3
6134*	10 Lacertæ . .	5.6	3 July 9	29 35.7	43.2	37 55 32.0	5 15.5	22 30 18.9	+38 0 47.5
6135	" . . .		3 Aug. 21	24 35.7	42.3	37 55 45.1	5 2.2	30 18.0	0 47.3
6136	Lalande 44344,5 .	6.7	4 Sept. 16	29 52.3	39.6	36 28 44.1	4 34.0	22 30 31.9	+36 33 18.1
6137	42 Pegasi ζ		3 July 19	30 40.4	48.0	9 42 22.3	5 6.2	22 31 28.4	+ 9 47 28.5
6138	" . . .		3 July 23	30 41.0	47.9	9 42 21.0	5 4.4	31 28.9	47 25.4
6139	" . . .	3	4 Nov. 23	30 44.1	44.5	9 42 53.6	4 32.6	31 28.6	47 26.2
6140	11 Lacertæ . .		3 July 29	31 4.2	41.5	43 8 53.5	5 11.0	22 31 45.7	+43 14 4.5
6141	" . . .	6.5	4 Oct. 9	31 7.5	38.4	+43 9 37.3	4 29.2	31 45.9	14 6.5
6142	Lalande 44391 .	6	4 Oct. 2	31 8.6	46.9	—13 40 40.8	4 37.7	22 31 55.5	—13 36 3.1
6143	43 Pegasi ο		3 July 12	31 38.2	45.3	+28 10 45.5	5 13.2	22 32 23.5	+28 15 58.7
6144	" . . .		3 July 26	31 38.0	44.9	28 10 58.1	5 9.3	32 22.9	16 7.4
6145	44 Pegasi η		3 July 9	32 53.8	45.3	29 5 28.8	5 15.0	22 33 39.1	+29 10 43.8
6146	" . . .		3 July 19	32 53.5	45.0	29 5 34.2	5 12.0	33 38.5	10 46.2
6147	" . . .		3 July 27	32 54.1	44.8	29 5 33.8	5 9.9	33 38.9	10 43.7
6148	" . . .		3 Sept. 15	32 55.2	44.3	29 5 47.5	4 56.8	33 39.5	10 44.3
6149	" . . .		4 Sept. 16	32 57.2	41.1	29 6 7.9	4 35.6	33 38.3	10 43.5
6150	" . . .		4 Sept. 18	32 57.7	41.2	29 6 6.7	4 35.2	33 38.9	10 41.9
6151*	" . . .	3	4 Oct. 9	32 57.2	41.3	29 6 13.5	4 31.2	33 38.5	10 44.7
6152	" . . .	3	4 Nov. 23	32 56.7	41.8	29 6 19.9	4 27.9	33 38.5	10 47.8
6153	Bessel, W.773 .	6	3 Aug. 20	32 57.0	47.4	+ 9 49 13.4	5 1.0	22 33 44.4	+ 9 54 14.4
6154	936 Mayer . .		4 Oct. 2	34 3.0	46.5	—10 46 12.1	4 38.3	22 34 49.5	—10 41 33.8
6155	13 Lacertæ . .		3 July 29	34 29.7	42.4	+40 41 9.2	5 12.6	22 35 12.1	+40 46 21.8
6156	" . . .		3 Aug. 21	34 29.5	42.0	40 41 21.9	5 5.3	35 11.5	46 27.2
6157*	45 Pegasi . .	7	3 July 23	34 58.1	46.8	18 13 47.2	5 9.7	22 35 44.9	+18 18 56.9
6158	Piazzi 214 . .	6	3 July 9	35 31.4	45.4	29 19 43.9	5 16.5	22 36 16.8	+29 25 0.4
6159	" . . .	6	3 July 12	35 31.4	45.3	29 19 41.8	5 15.6	36 16.7	24 57.4
6160	46 Pegasi ξ		3 July 27	35 54.2	47.7	11 3 57.7	5 7.4	22 36 41.9	+11 9 5.1
6161	" . . .		3 Sept. 15	35 55.1	47.2	11 4 12.5	4 58.5	36 42.3	9 11.0
6162	47 Pegasi λ		3 July 19	36 8.4	46.3	22 25 50.9	5 12.2	22 36 54.7	+22 31 3.1
6163	" . . .		3 July 26	36 8.1	46.1	22 25 53.4	5 10.3	36 54.2	31 3.7
6164	" . . .		4 Sept. 16	36 11.4	42.3	22 26 21.1	4 37.1	36 53.7	30 58.2
6165	" . . .	4	4 Sept. 18	36 12.2	42.3	22 26 20.4	4 36.8	36 54.5	30 57.2
6166	" . . .	4	4 Oct. 9	36 12.5	42.4	22 26 26.1	4 33.7	36 54.9	30 59.8
6167	" . . .	4	4 Nov. 23	36 11.3	42.9	22 26 29.8	4 31.2	36 54.2	31 1.0
6168	Groombridge 3882	6	3 July 29	36 37.0	41.9	+43 24 26.6	5 14.3	22 37 18.9	+43 29 40.9
6169	71 Aquarii τ^2	5	4 Oct. 2	38 12.8	46.9	—14 43 19.8	4 40.9	22 38 59.7	—14 38 38.9
6170	Piazzi 226 . .	5.6	3 July 12	22 38 18.3	+ 44.1	+36 16 46.7	+ 5 18.8	22 39 2.4	+36 22 5.5

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6171*	48 Pegasi μ		3 July 23	22 39 35.3	+ 46.2	+23 27 45.7	+ 5 13.2	22 40 21.5	+23 32 58.9
6172	“ . . .		3 July 29	39 35.1	46.0	23 27 46.0	5 11.5	40 21.1	32 57.5
6173	“ . . .		3 Sept. 15	39 36.3	45.5	23 27 56.4	5 0.1	40 21.8	32 56.5
6174	“ . . .		4 Sept. 16	39 39.3	42.3	23 28 15.6	4 38.7	40 21.6	32 54.3
6175	“ . . .	4	4 Oct. 9	39 39.4	42.4	23 28 18.6	4 35.1	40 21.8	32 53.7
6176	Piazzi 232 . .	6.7	3 July 19	40 5.0	47.1	17 59 57.9	5 3.1	22 40 52.1	+18 5 1.0
6177	14 Lacertæ . .	6	3 Aug. 20	40 39.5	42.5	40 48 41.5	5 8.9	22 41 22.0	+40 53 50.4
6178	“ . . .		3 Aug. 21	40 40.0	42.5	+40 48 41.7	5 8.5	41 22.5	53 50.2
6179*	73 Aquarii λ		4 Oct. 2	41 24.1	46.2	− 8 43 11.1	4 41.1	22 42 10.3	− 8 38 30.0
6180	49 Pegasi σ		3 July 26	41 27.3	48.2	+ 8 41 20.3	5 9.7	22 42 15.5	+ 8 46 30.0
6181*	“ . . .		4 Sept. 18	41 31.4	44.2	8 41 43.0	4 39.8	42 15.6	46 22.8
6182	15 Lacertæ . .		3 Aug. 21	42 19.5	42.3	42 10 1.4	5 9.5	22 43 1.8	+42 15 10.9
6183	“ . . .		3 Sept. 15	42 20.8	42.2	42 10 6.3	5 1.8	43 3.0	15 8.1
6184	Piazzi 241 . .	6	3 July 29	42 25.0	47.2	15 41 50.8	5 11.1	22 43 12.2	+15 47 1.9
6185	“ . . .		4 Sept. 17	42 28.9	43.4	+15 42 24.2	4 40.0	43 12.3	47 4.2
6186	76 Aquarii δ		3 July 27	43 10.1	51.2	−16 57 52.9	5 4.8	22 44 1.3	−16 52 48.1
6187	“ . . .		4 Sept. 16	43 14.1	47.0	−16 57 29.7	4 42.6	44 1.1	52 47.1
6188	Groombridge 3919	6	3 July 19	44 14.0	43.8	+39 13 28.4	5 20.3	22 44 57.8	+39 18 48.7
6189	50 Pegasi ρ		3 July 23	44 21.5	48.4	7 39 57.5	5 11.4	22 45 9.9	+ 7 45 8.9
6190*	“ . . .		4 Sept. 18	44 25.0	44.4	7 40 26.9	4 41.0	45 9.4	45 7.9
6191	Lalande 44862 .	6	3 July 29	45 42.0	44.4	+35 12 0.3	5 17.0	22 46 26.4	+35 17 17.3
6192	24 Piscis Austr. α	1	3 July 9	45 40.1	53.4	−30 45 53.5	5 4.5	22 46 33.5	−30 40 49.0
6193	“ . . .	1	3 July 12	45 40.3	53.3	30 45 40.8	5 4.3	46 33.6	40 36.5
6194	“ . . .		3 July 19	(45)		30 45 43.8	5 3.7	(46)	40 40.1
6195	“ . . .		3 July 27	45 40.6	52.9	30 45 45.4	5 3.5	46 33.5	40 41.9
6196	“ . . .		4 Sept. 17	45 44.5	48.5	30 45 23.7	4 45.1	46 33.0	40 38.6
6197*	“ . . .		4 Oct. 2	45 44.2	48.5	−30 45 28.4	4 47.0	46 32.7	40 41.4
6198	16 Lacertæ . .		3 Aug. 21	46 34.3	43.0	+40 27 7.9	5 11.3	22 47 17.3	+40 32 19.2
6199	51 Pegasi . .		3 July 23	46 51.8	47.0	19 36 45.1	5 15.6	22 47 38.8	+19 42 0.7
6200	“ . . .		3 Aug. 20	46 52.2	46.5	19 36 45.4	5 8.7	47 38.7	41 54.1
6201	Anonyma . .	7	3 Sept. 15	47 35.2	46.2	+20 21 49.6	5 3.7	22 48 21.4	+20 26 53.3
6202	Lacaille 9321 .	5.6	3 July 27	47 43.9	52.7	−30 36 59.5	5 4.2	22 48 36.6	−30 31 55.3
6203	“ . . .	5.4	4 Sept. 16	47 49.1	48.4	30 36 37.0	4 45.7	48 37.5	31 51.3
6204*	“ . . .	6	4 Sept. 17	47 46.7	48.4	−30 36 36.6	4 45.9	48 35.1	31 50.7
6205	Lalande 44982 .	7.8	3 Sept. 15	49 31.7	46.3	+20 4 7.1	5 4.6	22 50 18.0	+20 9 11.7
6206	Lalande 45023 .	7	3 July 29	50 25.6	45.6	29 55 29.6	5 17.9	22 51 11.2	+30 0 47.5
6207	Bessel, W.1137 .	7.8	3 Aug. 20	50 38.7	47.3	13 42 49.8	5 9.5	22 51 26.0	+13 47 59.3
6208	Groombridge 3947	7	3 July 19	50 49.4	43.3	44 12 44.8	5 24.4	22 51 32.7	+44 18 9.2
6209	“ . . .	6.7	3 July 26	50 49.9	43.1	44 12 51.5	5 22.3	51 33.0	18 13.8
6210	“ . . .	7	3 Aug. 21	50 50.1	42.6	+44 13 1.4	5 13.8	51 32.7	18 15.2
6211	82 Aquarii . .		3 July 27	51 19.1	50.0	− 7 43 46.0	5 9.1	22 52 9.1	− 7 38 36.9
6212	Piazzi 283 . .	7	4 Sept. 17	51 57.5	43.7	+15 4 51.0	4 43.8	22 52 41.2	+15 9 34.8
6213	1 Andromedæ ο		3 July 9	52 0.6	44.3	41 9 48.6	5 27.2	22 52 44.9	+41 15 15.8
6214	“ . . .		3 July 12	52 0.5	44.2	41 9 42.5	5 26.3	52 44.7	15 8.8
6215	“ . . .		3 July 19	52 0.6	44.0	41 9 47.0	5 24.3	52 44.6	15 11.3
6216	“ . . .		3 July 26	(52)		41 9 50.4	5 22.1	(52)	15 12.5
6217	“ . . .		4 Sept. 18	52 4.4	40.1	41 10 26.9	4 44.0	52 44.5	15 10.9
6218	Bessel, W.1279 .	7	3 Sept. 15	52 32.8	46.4	19 45 39.7	5 5.7	22 53 19.2	+19 50 45.4
6219*	4 Piscium β	4.5	4 Oct. 2	52 57.0	44.9	2 40 5.2	4 40.1	22 53 41.9	+ 2 44 45.3
6220	53 Pegasi β		3 July 9	53 19.1	46.7	26 54 35.4	5 23.8	22 54 5.8	+26 59 59.2
6221	“ . . .		3 July 23	53 19.3	46.3	26 54 41.7	5 20.2	54 5.6	+27 0 1.9
6222	“ . . .		4 Sept. 16	53 22.7	42.4	26 55 18.7	4 44.5	54 5.1	0 3.2
6223	54 Pegasi α		3 July 19	54 0.4	48.0	14 2 39.9	5 17.9	22 54 48.4	+14 7 57.8
6224*	“ . . .		3 July 29	54 0.5	47.8	14 2 42.0	5 15.6	54 48.3	7 57.6
6225*	“ . . .	2	3 Aug. 17	54 1.2	47.4	14 2 39.6	5 11.5	54 48.6	7 51.1
6226	“ . . .		3 Aug. 20	54 0.7	47.3	14 2 42.7	5 10.8	54 48.0	7 53.5
6227	“ . . .		3 Aug. 21	54 1.4	47.3	14 2 43.0	5 10.6	54 48.7	7 53.6
6228	“ . . .		4 Sept. 18	(54)	43.8	14 3 5.5	4 44.5	(54)	7 50.0
6229	Lalande 45163 .	6.7	3 July 27	54 13.7	49.2	0 8 48.9	5 12.1	22 55 2.9	+ 0 14 1.0
6230	Rümker 10819 .	7.8	3 Sept. 15	22 54 58.8	+ 46.6	+19 4 44.1	+ 5 6.8	22 55 45.4	+19 9 50.9

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				h m s	s	° ' "	' "	h m s	° ' "
6231	Piazzi 300	6.7	3 July 29	22 55 34.6	+ 47.5	+17 20 57.1	+ 5 16.3	22 56 22.1	+17 26 13.4
6232	"	7	4 Sept. 17	55 37.9	43.5	17 21 28.4	4 45.1	56 21.4	26 13.5
6233	Piazzi 301	7	3 Sept. 15	55 50.3	46.7	18 44 52.0	5 7.0	22 56 37.0	+18 49 59.0
6234*	55 Pegasi l		3 Aug. 21	56 7.8	48.0	8 14 43.8	5 10.7	22 56 55.8	+ 8 19 54.5
6235	56 Pegasi		3 July 12	56 36.0	47.1	24 18 5.1	5 23.5	22 57 23.1	+24 23 28.6
6236	"		3 July 26	56 35.7	46.7	24 18 11.4	5 19.9	57 22.4	23 31.3
6237	"	6.7	4 Sept. 17	56		24 18 50.5	4 45.4	57	23 35.9
6238	Lalande 45241	6	3 July 19	56 49.7	47.4	19 58 10.5	5 20.6	22 57 37.1	+20 3 31.1
6239	"	7	3 July 23	56 50.2	47.3	19 58 12.4	5 19.7	57 37.5	3 32.1
6240	5 Piscium A		4 Sept. 18	57 41.0	45.1	0 57 39.9	4 46.1	22 58 26.1	+ 1 2 26.0
6241	4 Andromedæ		4 Sept. 16	57 53.3	39.7	45 13 40.9	4 46.9	22 58 33.0	+45 18 27.8
6242	57 Pegasi m		3 July 26	58 37.7	48.6	7 30 32.6	5 16.4	22 59 26.3	+ 7 35 49.0
6243	"		3 Sept. 15	58 38.3	47.9	7 30 35.4	5 8.0	59 26.2	35 48.4
6244*	Lalande 45320	6.7	3 July 27	58 41.7	47.6	17 34 1.8	5 18.7	22 59 29.3	+17 39 20.5
6245	"	7.8	3 July 29	58 41.4	47.5	17 34 4.5	5 18.2	59 28.9	39 23.7
6246	Piazzi 319	6.7	3 July 19	59 6.3	46.5	28 29 51.7	5 23.8	22 59 52.8	+28 35 15.5
6247	"	7	3 July 23	59 7.0	46.4	28 29 54.9	5 22.7	59 53.4	35 17.6
6248	58 Pegasi n		3 Aug. 20	59 9.6	48.0	8 39 16.6	5 12.0	22 59 57.6	+ 8 44 28.6
6249	Groombridge 3996	7	3 Aug. 21	59 33.4	42.4	48 28 54.7	5 18.0	23 0 15.8	+48 34 12.7
6250	Groombridge 3997	7.8	4 Sept. 17	59 47.7	41.1	38 18 32.1	4 46.9	23 0 28.8	+38 23 19.0
6251	Piazzi 4		3 July 12	22 59 59.1	48.1	16 25 19.3	5 22.5	23 0 47.2	+16 30 41.8
6252	Piazzi 5	6.7	4 Oct. 2	23 0 19.4	44.8	3 50 29.3	4 45.9	23 1 4.2	+ 3 55 15.2
6253	6 Andromedæ		3 Sept. 15	0 31.9	43.6	42 23 4.2	5 9.9	23 1 15.5	+42 28 14.1
6254	"	7.8	4 Sept. 16	0 34.0	40.5	42 23 28.5	4 47.8	1 14.5	28 16.3
6255	Lalande 45378	7	3 July 19	0 44.3	46.6	28 52 10.9	5 24.5	23 1 30.9	+28 57 35.4
6256	Lalande 45445	6.7	3 July 26	2 36.1	46.6	28 16 14.7	5 23.0	23 3 22.7	+28 21 37.7
6257	"	6.7	3 July 27	2 37.1	46.5	28 16 13.6	5 22.8	3 23.6	21 36.4
6258	"	7	3 July 29	2 36.4	46.5	28 16 10.9	5 22.2	3 22.9	21 33.1
6259	7 Andromedæ		3 Aug. 21	2 43.0	42.8	48 13 32.1	5 19.2	23 3 25.8	+48 18 51.3
6260	"		3 Sept. 15	2 43.2	42.6	48 13 42.4	5 11.0	3 25.8	18 53.4
6261	Lalande 45472	7.8	4 Oct. 2	3 5.7	44.9	3 49 51.1	4 46.8	23 3 50.6	+ 3 54 37.9
6262	Piazzi 20	6.7	3 July 19	3 17.4	47.9	18 27 31.5	5 22.7	23 4 5.3	+18 32 54.2
6263*	"	7	3 July 23	3 17.3	47.8	18 27 31.8	5 21.6	4 5.1	32 53.4
6264	Lalande 45496	6.7	3 July 27	3 53.8	46.6	28 35 45.7	5 23.2	23 4 40.4	+28 41 8.9
6265	"	6.7	4 Sept. 17	3 57.4	42.6	28 36 19.9	4 48.1	4 40.0	41 8.0
6266	Lalande 45498	6.7	3 Aug. 20	3 58.7	46.7	22 55 40.5	5 15.8	23 4 45.4	+23 0 56.3
6267	"	7	3 Aug. 17	4 26.9	46.4	26 53 41.0	5 17.5	23 5 13.3	+26 58 58.5
6268	61 Pegasi	6.7	3 July 26	5 14.6	46.8	27 4 16.4	5 23.7	23 6 1.4	+27 9 40.1
6269	"		3 Aug. 17	5 14.4	46.4	27 4 13.2	5 17.7	6 0.8	9 30.9
6270	Lalande 45543	7	3 Aug. 21	5 20.0	46.7	23 35 37.7	5 16.1	23 6 6.7	+23 40 53.8
6271	6 Piscium γ		4 Sept. 18	(6)	45.0	2 6 35.9	4 48.6	23 (6)	+ 2 11 24.5
6272	"	5	4 Oct. 2	6 2.4	45.0	2 6 41.7	4 47.8	6 47.4	11 29.5
6273	Anonyma	7	3 July 27	7 13.3	46.6	29 51 0.6	5 24.8	23 7 59.9	+29 56 25.4
6274	"	8	3 July 29	7 13.1	46.6	29 51 2.2	5 24.2	7 59.7	56 26.4
6275	Lalande 45613,4	7	3 July 19	7 17.4	46.5	32 52 4.7	5 27.8	23 8 3.9	+32 57 32.5
6276	"	8	3 July 23	7 17.6	46.4	32 51 59.9	5 26.7	8 4.0	57 26.6
6277	Lalande 45620	7.8	3 Aug. 17	7 25.0	46.3	29 16 50.8	5 18.8	23 8 11.3	+29 22 9.6
6278	8 Andromedæ		3 Sept. 15	7 48.2	43.2	47 50 11.7	5 12.9	23 8 31.4	+47 55 24.6
6279	Lalande 45635	9.10	4 Oct. 2	7 51.4	45.0	2 4 52.6	4 48.2	23 8 36.4	+ 2 9 40.8
6280*	Piazzi 44	7.8	3 July 26	7 54.7	47.1	26 25 31.4	5 24.3	23 8 41.8	+26 30 55.7
6281*	9 Andromedæ	6	3 Aug. 21	8 11.2	44.8	40 35 32.0	5 19.8	23 8 56.0	+40 40 51.8
6282	"		4 Sept. 16	8 15.4	41.4	40 36 7.5	4 50.3	8 56.8	40 57.8
6283	Lalande 45655	8	3 July 23	8 12.4	46.5	32 32 50.5	5 26.9	23 8 58.9	+32 38 17.4
6284	Lalande 45677	6.7	3 July 27	9 1.7	46.5	33 36 39.2	5 26.2	23 9 48.2	+33 42 5.4
6285	"	7	3 July 29	9 1.9	46.5	33 36 40.4	5 25.7	9 48.4	42 6.1
6286	"	6.7	3 Aug. 20	9 2.8	45.8	33 36 43.7	5 19.3	9 48.6	42 3.0
6287	7 Piscium b		4 Sept. 18	9 24.1	44.9	4 12 38.6	4 48.6	23 10 9.0	+ 4 17 27.2
6288	"	6	4 Oct. 2	9 24.3	44.9	4 12 44.4	4 49.5	10 9.2	17 33.9
6289*	Bessel, W.262	7	4 Sept. 17	9 34.8	43.5	21 55 13.7	4 49.6	23 10 18.3	+22 0 3.3
6290	10 Andromedæ	6	3 Aug. 21	23 9 37.2	+ 44.4	+40 53 47.5	+ 5 20.4	23 10 21.6	+40 59 7.9

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6291	10 Andromedæ .	2	4 Sept. 16	23 9 41.9	+ 41.4	+40 54 13.3	+ 4 50.8	23 10 23.3	+40 59 4.1
6292	62 Pegasi τ	6	4 Dec. 28	9 59.7	44.3	22 34 3.2	4 44.7	23 10 44.0	+22 38 47.9
6293	12 Andromedæ .		3 July 19	10 29.4	46.2	37 0 3.8	5 29.7	23 11 15.6	+37 5 33.5
6294	" . . .	6	3 July 23	10 29.7	46.1	37 0 4.1	5 28.6	11 15.8	5 32.7
6295	" . . .		3 July 27	10 29.9	46.0	37 0 9.2	5 27.5	11 15.9	5 36.7
6296	" . . .		3 July 29	10 29.6	45.9	37 0 9.2	5 26.9	11 15.5	5 36.1
6297	" . . .		3 Aug. 17	10 30.0	45.5	37 0 16.1	5 21.3	11 15.5	5 37.4
6298	64 Pegasi . .	6.5	3 Aug. 20	11 24.4	46.3	30 37 45.8	5 19.5	23 12 10.7	+30 43 5.3
6299	Lalande 45780 .	7	4 Sept. 17	11 53.0	43.3	24 44 39.4	4 50.3	23 12 36.3	+24 49 29.7
6300	Lalande 45781 .	8.9	4 Oct. 2	11 55.3	45.0	1 38 36.9	4 49.4	23 12 40.3	+ 1 43 26.3
6301	66 Pegasi . .		3 Sept. 15	12 12.1	47.8	11 7 55.1	5 12.1	23 12 59.9	+11 13 7.2
6302	3109 Bradley .	7.8	3 Aug. 17	13 13.0	46.4	31 20 42.1	5 21.0	23 13 59.4	+31 26 3.1
6303	Lalande 45831 .	7.8	3 July 26	13 38.3	47.8	22 34 27.6	5 21.2	23 14 26.1	+22 39 48.8
6304	Groombridge 4052	7.8	3 July 27	13 49.5	45.8	40 25 31.2	5 29.5	23 14 35.3	+40 31 0.7
6305	" . . .	7.8	4 Sept. 16	13 54.0	41.8	40 26 4.5	4 51.9	14 35.8	30 56.4
6306	Lalande 45839 .	7	3 Aug. 21	13 56.8	46.5	29 31 34.1	5 19.6	23 14 43.3	+29 36 53.7
6307	Groombridge 4053	6.7	3 July 19	14 14.0	46.1	39 55 28.0	5 31.8	23 15 0.1	+40 0 59.8
6308	" . . .	7	3 July 23	14 14.4	46.0	39 55 26.8	5 30.6	15 0.4	0 57.4
6309	67 Pegasi . .	6.5	4 Sept. 17	14 21.8	42.9	31 12 26.0	4 51.2	23 15 4.7	+31 17 17.2
6310	68 Pegasi υ		3 July 26	14 36.8	47.8	22 12 54.3	5 25.1	23 15 24.6	+22 18 19.4
6311	Lalande 45861 .	7	3 Aug. 20	14 57.5	47.1	23 46 7.5	5 19.2	23 15 44.6	+23 51 26.7
6312	8 Piscium κ^1		4 Sept. 18	15 55.6	45.2	0 4 54.6	4 51.2	23 16 40.8	+ 0 9 45.8
6313	" . . .	5	4 Oct. 2	15 55.2	45.1	+ 0 4 56.0	4 50.4	16 40.3	9 46.4
6314	9 Piscium κ^2	6	4 Oct. 2	16 14.7	45.1	− 0 3 18.2	4 50.5	23 16 59.8	+ 0 1 32.3
6315	13 Andromedæ .		3 July 19	16 44.8	46.1	+41 43 10.5	5 32.7	23 17 30.9	+41 48 43.2
6316*	" . . .	6	3 July 23	16 45.3	46.0	41 43 7.4	5 31.5	17 31.3	48 38.9
6317	" . . .		3 July 27	16 45.3	45.9	41 43 11.5	5 30.3	17 31.2	48 41.8
6318	" . . .		4 Sept. 16	16 49.7	41.8	41 43 45.9	4 52.9	17 31.5	48 38.8
6319	69 Pegasi . .		3 July 26	16 57.2	47.7	23 58 52.6	5 26.3	23 17 44.9	+24 4 18.9
6320*	" . . .		3 Aug. 17	16 57.4	47.2	23 58 51.2	5 20.6	17 44.6	4 11.8
6321*	" . . .		3 Aug. 20	16 58.3	47.2	23 58 52.9	5 19.9	17 45.5	4 12.8
6322*	10 Piscium θ	5	4 Dec. 28	17 3.7	45.6	5 12 1.5	4 52.2	23 17 49.3	+ 5 16 53.7
6323	Lalande 45960 .	6.7	3 Aug. 21	17 36.5	47.6	18 41 51.8	5 18.7	23 18 24.1	+18 47 10.5
6324	" . . .	7	4 Sept. 17	17 39.8	44.0	18 42 24.9	4 51.5	18 23.8	47 16.4
6325	70 Pegasi q		3 Sept. 15	18 15.0	47.9	11 34 16.3	5 13.8	23 19 2.9	+11 39 30.1
6326	Groombridge 4074	8.9	3 July 27	19 8.9	45.6	+45 16 24.1	5 31.9	23 19 54.5	+45 21 56.0
†6327	Lalande 46022 .	8	4 Oct. 2	19 41.7	45.2	− 0 17 35.3	4 51.2	23 20 26.9	− 0 12 44.1
6328	14 Andromedæ .		3 Aug. 17	20 42.4	46.2	+38 2 56.3	5 24.5	23 21 28.6	+38 8 20.8
6329	" . . .		3 Aug. 20	20 42.7	46.1	38 3 0.6	5 23.5	21 28.8	8 24.1
6330	" . . .		3 Aug. 21	20 43.0	46.1	38 2 59.3	5 23.1	21 29.1	8 22.4
6331	" . . .		4 Sept. 16	20 46.2	42.6	+38 3 27.0	4 53.5	21 28.8	8 20.5
6332	13 Piscium . .	7	4 Oct. 2	20		− 2 16 7.4	4 51.6	23 21	− 2 11 15.8
6333*	" . . .	7	4 Dec. 28	20 55.1	45.9	− 2 16 12.6	4 53.9	21 41.0	11 18.7
6334	Lalande 46084 .	7	3 Sept. 15	21 2.9	46.8	+27 12 50.5	5 15.1	23 21 49.7	+27 18 5.6
6335	" . . .	6.7	4 Sept. 17	21 5.7	43.5	27 13 8.1	4 52.7	21 49.2	18 0.8
6336	Piazzi 110 .	7.8	3 July 27	21 25.9	46.2	42 52 40.9	5 32.1	23 22 12.1	+42 58 13.0
6337	71 Pegasi y		3 July 26	22 39.8	48.2	21 18 22.8	5 26.9	23 23 28.0	+21 23 49.7
6338	" . . .	6	4 Sept. 17	22 43.2	44.0	+21 18 57.7	4 52.8	23 27.2	23 50.5
6339	14 Piscium . .	6	4 Oct. 2	23 6.7	45.2	− 2 25 52.9	4 52.2	23 23 51.9	− 2 21 0.7
6340	Lalande 46161 .	6.5	3 July 19	23 6.3	48.5	+19 38 50.5	5 28.1	23 23 54.8	+19 44 18.6
6341	" . . .	5.6	3 July 23	23 6.3	48.4	19 38 50.9	5 27.3	23 54.7	44 18.2
6342	72 Pegasi . .		3 Aug. 20	23 16.7	47.0	30 8 0.2	5 22.4	23 24 3.7	+30 13 22.6
6343	" . . .	6	3 Sept. 15	23 17.4	46.7	30 8 10.8	5 15.7	24 4.1	13 26.5
6344	Piazzi 121 . .	7	3 July 27	23 30.3	46.4	42 42 26.5	5 32.5	23 24 16.7	+42 47 59.0
6345	15 Andromedæ .		3 Aug. 17	24 8.2	46.3	39 2 42.3	5 25.2	23 24 54.5	+39 8 7.5
6346	" . . .		4 Sept. 16	24 9.6	42.7	39 3 8.6	4 54.4	24 52.3	8 3.0
6347	15 Piscium . .	7	4 Oct. 2	24		0 7 44.2	4 52.1	23 25	+ 0 12 36.3
6348	Bessel, W.612 .	8	3 July 26	25 3.7	48.5	17 14 11.6	5 26.2	23 25 52.2	+17 19 37.8
6349	Lalande 46239 .	7.8	4 Sept. 17	25 11.6	44.0	23 22 28.5	4 53.4	23 25 55.6	+23 27 21.9
6350	" . . .	7	4 Dec. 28	23 25 10.4	+ 44.7	+23 22 37.3	+ 4 47.5	23 25 55.1	+23 27 24.8

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6351	Lalande 46255	8	3 Sept. 15	23 25 50.4	+ 46.7	+31 42 39.6	+ 5 16.5	23 26 37.1	+31 47 56.1
6352	Johnson 6126	7.8	3 July 23	26 20.8	46.9	42 6 32.6	5 34.3	23 27 7.7	+42 12 6.9
6353	74 Pegasi		3 Aug. 20	26 44.0	48.1	15 37 50.7	5 20.5	23 27 32.1	+15 43 11.2
6354	“		4 Sept. 16	26 47.0	44.4	15 38 17.3	4 53.5	27 31.4	43 10.8
6355	Piazzi 136	8	4 Oct. 2	26 50.4	45.0	2 10 59.7	4 52.3	23 27 35.4	+ 2 15 52.0
6356	16 Andromedæ λ	5.6	3 July 27	27 2.5	46.4	45 17 2.0	5 33.7	23 27 48.9	+45 22 35.7
6357	“		3 Aug. 17	27 2.3	45.9	45 17 11.5	5 27.3	27 48.2	22 38.8
6358*	75 Pegasi s		3 July 26	27 3.1	48.6	17 12 14.6	5 26.6	23 27 51.7	+17 17 41.2
6359*	Lalande 46300,1	6.7	3 July 27	27 21.9	46.5	45 (0)		23 28 8.4	+45 (6)
6360	17 Andromedæ ι	3.4	3 July 19	27 34.6	47.2	42 4 5.4	5 35.6	23 28 21.8	+42 9 41.0
6361	“		3 July 23	27 34.8	47.0	42 4 3.1	5 24.3	28 21.8	9 37.4
6362	“		3 Sept. 15	27 36.4	45.9	42 4 25.7	5 17.8	28 22.3	9 43.5
6363	“	6	4 Sept. 17	27 38.2	42.6	42 4 49.7	4 55.1	28 20.8	9 44.8
6364*	Piazzi 147	8	4 Oct. 2	29 20.1	45.0	3 36 57.9	4 52.6	23 30 5.1	+ 3 41 50.5
6365	“	7.8	4 Dec. 28	29 19.5	45.8	3 36 58.3	4 54.9	30 5.3	41 53.2
6366	19 Andromedæ κ		3 Aug. 17	29 48.9	46.4	43 8 10.4	5 26.1	23 30 35.3	+43 13 36.5
6367	“	4	3 Aug. 20	29 49.3	46.3	43 8 12.8	5 26.4	30 35.6	13 39.2
6368	“		3 Sept. 15	29 50.2	46.0	43 8 18.3	5 18.3	30 36.2	13 36.6
6369	“	5.6	4 Sept. 17	29 52.4	42.7	43 8 45.8	4 55.6	30 35.1	13 41.4
6370	Lalande 46424	8	3 July 27	30 35.3	46.8	45 1 12.3	5 33.7	23 31 22.1	+45 6 46.0
6371	18 Piscium λ		3 July 19	31 1.1	49.6	0 35 29.4	5 23.8	23 31 50.7	+ 0 40 53.2
6372	76 Pegasi	6	3 July 23	31 46.9	48.9	15 8 7.2	5 27.5	23 32 35.8	+15 13 34.7
6373	“	6.7	3 Aug. 21	31 47.0	48.3	15 8 13.8	5 21.0	32 35.3	13 34.8
6374	“		4 Sept. 16	31 49.6	44.6	15 8 40.7	4 54.3	32 34.2	13 35.0
6375	77 Pegasi		3 July 26	32 22.7	49.1	9 7 58.9	5 25.2	23 33 11.8	+ 9 13 24.1
6376	78 Pegasi	6.5	4 Sept. 17	33 13.0	44.0	28 10 22.8	4 55.1	23 33 57.0	+28 15 17.0
6377	Piazzi 171	7	3 Aug. 20	33 55.5	46.5	45 10 48.6	5 27.6	23 34 42.0	+45 16 16.2
6378	“	7.8	3 Aug. 21	33 55.7	46.5	45 10 49.3	5 27.3	34 42.2	16 16.6
6379	“	8	3 Sept. 15	33 55.9	46.2	45 10		34 42.1	16
6380	Piazzi 173	8	3 July 27	34 4.6	47.5	42 32 39.0	5 34.4	23 34 52.1	+42 38 13.4
6381	Rümker 11533	7	4 Sept. 17	34 37.0	44.5	19 13 34.7	4 54.9	23 35 21.5	+19 18 29.6
6382	“	7	4 Dec. 28	34 36.7	45.2	19 13 33.0	4 50.2	35 21.9	18 23.2
6383*	Lalande 46553,4	7	4 Oct. 2	34 43.7	44.7	11 57 52.6	4 52.8	23 35 28.4	+12 2 45.4
6384	20 Andromedæ ψ		3 July 23	35 22.7	47.4	45 12 54.4	5 36.4	23 36 10.1	+45 18 30.8
6385	“	6	3 July 27	35 22.5	47.3	45 13 4.6	5 35.2	36 9.8	18 39.8
6386	“		3 Aug. 17	35 23.0	46.8	45 13 8.2	5 28.7	36 9.8	18 36.9
6387	“		3 Aug. 20	35 23.3	46.7	45 13 13.6	5 27.8	36 10.0	18 41.4
6388	“		3 Aug. 21	35 22.9	46.7	45 13 10.3	5 27.4	36 9.6	18 37.7
6389	“		3 Sept. 15	35 23.9	46.3	45 13 21.0	5 19.5	36 10.2	18 40.5
6390	Lalande 46611	6.7	3 July 26	36 35.8	48.6	24 22 46.3	5 30.0	23 37 24.4	+24 28 16.3
6391	“	7	4 Sept. 28	36 40.0	44.3	24 23 14.6	4 53.2	37 24.3	28 7.8
6392	“	7	4 Sept. 30	36 39.8	44.3	24 23 15.1	4 52.9	37 24.1	28 8.0
6393	“	6.7	4 Oct. 2	36 39.0	44.3	24 23 18.4	4 52.6	37 23.3	28 11.0
6394	Bessel, W.895	8	3 Sept. 15	38 24.0	47.9	21 39 20.7	5 17.9	23 39 11.9	+21 44 38.6
6395	79 Pegasi		3 July 23	38 45.0	48.7	27 38 13.1	5 32.0	23 39 33.7	+27 43 45.1
6396	“	6	4 Sept. 28	38 48.6	44.3	27 38 52.7	4 53.5	39 32.9	43 46.2
6397*	“		4 Sept. 30	38 48.8	44.3	27 39 0.9	4 53.0	39 33.1	43 53.9
6398	Lalande 46676	6	3 Aug. 20	38 51.8	47.7	35 13 32.1	5 26.3	23 39 39.5	+35 18 58.4
6399	“	6	3 Aug. 21	38 51.9	47.7	35 13 34.3	5 26.0	39 39.6	19 0.3
6400	Lalande 46678	7	3 July 26	38 55.3	48.7	26 28 45.0	5 31.0	23 39 44.0	+26 34 16.0
6401	“	7	4 Oct. 2	38 59.9	44.3	26 29 18.7	4 52.8	39 44.2	34 11.5
6402	“	7	4 Dec. 28	38 58.0	45.0	26 29 28.2	4 48.2	39 43.0	34 16.4
6403	Lalande 46725	7	3 July 27	40 25.3	48.2	38 59 54.7	5 34.4	23 41 13.5	+39 5 29.1
6404	Lalande 46746	7.8	3 Sept. 15	41 3.7	47.4	36 41 41.7	5 19.5	23 41 51.1	+36 47 1.2
6405*	23 Piscium	6.7	4 Sept. 15	41 32.6	44.7	20 28 38.4	4 56.0	23 42 17.3	+20 33 34.2
6406	“	6	4 Sept. 28	41 31.1	44.6	20 28 37.7	4 53.7	42 15.7	33 31.4
6407	“	6	4 Sept. 30	41 30.5	44.6	20 28 38.0	4 53.4	42 15.1	33 31.4
6408	“	6	4 Dec. 28	41 29.5	45.3	20 28 46.1	4 50.5	42 14.8	33 36.6
6409	81 Pegasi φ		3 July 23	41 31.1	49.1	17 55 7.6	5 29.5	23 42 20.2	+18 0 37.1
6410	“		3 Aug. 17	23 41 31.2	+ 48.6	+17 55 12.4	+ 5 23.7	23 42 19.8	+18 0 36.1

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				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6411	81 Pegasi φ		4 Sept. 16	23 41 34.9	+ 44.8	+17 55 39.7	+ 4 55.6	23 42 19.7	+18 0 35.3
6412	" . . .	6	4 Oct. 2	41 35.2	44.7	17 55 44.4	4 53.2	42 19.9	0 37.6
6413	82 Pegasi . .	6.5	4 Sept. 17	41 39.9	45.0	9 45 15.5	4 55.1	23 42 24.9	+ 9 50 10.6
6414	83 Pegasi τ	6.7	4 Sept. 28	41 47.7	44.6	20 32 59.3	4 53.8	23 42 32.3	+20 37 53.1
6415	" . . .	6.7	4 Sept. 30	41 46.5	44.6	20 32 58.8	4 53.5	42 31.1	37 52.3
6416	Anonyma . . .	6.7	3 July 26	42 0.7	49.1	16 41 59.8	5 28.4	23 42 49.8	+16 47 28.2
6417	Piazzi 220 . .	6.7	3 Aug. 20	42 6.7	47.9	35 45 23.7	5 26.8	23 42 54.6	+35 50 50.5
6418	" . . .	7	3 Aug. 21	42 6.4	47.9	35 45 27.8	5 26.6	42 54.3	50 54.4
6419	Lalande 46861 .	6.7	3 July 26	43 47.0	49.2	17 32 38.3	5 28.9	23 44 36.2	+17 38 7.2
6420	" . . .	7	4 Oct. 2	43 51.8	44.8	17 33 10.0	4 53.4	44 36.6	38 3.4
6421	26 Piscium . .		3 Sept. 15	44 6.2	48.5	5 52 15.5	5 17.5	23 44 54.7	+ 5 57 33.0
6422	" . . .	6.7	4 Sept. 17	44 8.9	45.1	5 52 42.4	4 56.1	44 54.0	57 38.5
6423	" . . .	7	4 Oct. 6	44 8.9	45.0	5 52 39.6	4 53.8	44 53.9	57 33.4
6424	Piazzi 229 . .	7.8	3 July 23	44 24.5	49.1	24 45 3.6	5 31.7	23 45 13.6	+24 50 35.3
6425	Johnson 6217 .	6.7	3 July 27	44 42.8	48.2	46 8 58.2	5 36.8	23 45 31.0	+46 14 35.0
6426	Lalande 46906 .	7	3 Aug. 20	44 58.8	48.5	19 57 43.7	5 23.8	23 45 47.3	+20 3 7.5
6427	" . . .	7	3 Aug. 21	44 59.0	48.5	19 57 43.2	5 23.5	45 47.5	3 6.7
6428	Piazzi 235 . .	6	3 July 26	45 42.0	49.1	21 26 42.2	5 30.2	23 46 31.1	+21 32 12.4
6429	" . . .	7	3 Aug. 17	45 41.8	48.6	21 26 42.4	5 24.9	46 30.4	32 7.3
6430	" . .	6	4 Sept. 28	45 46.7	44.7	21 27 8.2	4 54.0	46 31.4	32 2.2
6431	" . . .		4 Sept. 30	45 46.6	44.7	21 27 10.2	4 53.8	46 31.3	32 4.0
6432	84 Pegasi ψ		3 July 23	46 46.3	49.2	23 56 19.4	5 31.7	23 47 35.5	+24 1 51.1
6433	" . . .		3 July 27	46 45.3	49.1	23 56 16.4	5 30.8	47 34.4	1 47.2
6434	" . . .		3 Aug. 20	46 45.6	48.5	23 56 25.6	5 24.7	47 34.1	1 50.3
6435	" . . .		3 Aug. 21	46 46.5	48.5	23 56 25.0	5 24.6	47 35.0	1 49.6
6436	" . . .		3 Sept. 15	46 47.2	48.2	23 56 29.3	5 18.8	47 35.4	1 48.1
6437	" . . .	6	4 Sept. 15	46 49.9	44.8	23 56 53.1	4 56.7	47 34.7	1 49.8
6438	" . . .		4 Sept. 16	46 49.9	44.8	23 56 48.7	4 56.6	47 34.7	1 45.3
6439	" . . .		4 Sept. 17	46 50.6	44.8	23 56 56.1	4 56.4	47 35.4	1 52.5
6440*	" . . .		4 Sept. 28	46 50.0	44.7	+23 56 53.0	4 54.2	47 34.7	1 47.2
6441	27 Piscium . .	5	4 Oct. 6	47 41.4	45.1	− 4 44 46.5	4 54.9	23 48 26.5	− 4 39 51.6
6442	Lalande 47032,4 .	6.7	3 July 26	48 30.4	49.0	+32 31 31.1	5 33.6	23 49 19.4	+32 37 4.7
6443	" . . .	6	3 July 27	48 30.2	49.0	32 31 28.9	5 33.4	49 19.2	37 2.3
6444	Piazzi 250 . .	6.7	4 Oct. 2	48 48.9	45.0	10 4 41.6	4 54.0	23 49 34.9	+10 9 35.6
6445	3192 Bradley .	7	3 July 23	49 22.3	49.3	25 43 1.9	5 32.5	23 50 11.6	+25 48 34.4
6446	" . . .	6.7	3 Aug. 20	49 22.3	48.6	25 43 3.8	5 25.3	50 10.9	48 29.1
6447	" . . .	7	3 Aug. 21	49 21.9	48.6	25 43 2.2	5 25.0	40 10.5	48 27.2
6448	" . . .	7	3 Sept. 15	49 23.4	48.3	25 43 9.9	5 19.2	50 11.7	48 29.1
6449	" . . .	7	4 Sept. 15	49 25.4	44.9	25 43 34.4	4 57.1	50 10.3	48 31.5
6450	" . . .	6.7	4 Sept. 17	49 26.1	44.8	25 43 39.4	4 56.6	50 10.9	48 36.0
6451	" . . .	6.7	4 Sept. 28	49 26.3	44.8	25 43 34.6	4 54.5	50 11.1	48 29.1
6452*	" . . .	6.7	4. Sept. 30	49 26.8	44.8	25 43 32.6	4 54.0	50 11.6	48 26.6
6453	Groombridge 4199	7	3 July 26	50 43.7	49.0	41 9 37.4	5 36.2	23 51 32.7	+41 15 13.6
6454	" . . .	6.7	3 July 27	50 43.8	49.0	+41 9 37.3	5 35.9	51 32.8	15 13.2
6455	29 Piscium . .	5	4 Oct. 6	50 49.6	45.1	− 4 13 20.1	4 55.1	23 51 34.7	− 4 8 25.0
6456*	85 Pegasi . .		3 July 23	50 54.5	49.4	+25 56 8.9	5 32.8	23 51 43.9	+26 1 41.7
6457	" . . .		3 Aug. 17	50 54.3	48.8	25 56 13.0	5 26.1	51 43.1	1 39.1
6458	" . . .	6.7	3 Aug 21	50 55.2	48.7	25 56 15.6	5 25.1	51 43.9	1 40.7
6459	" . . .		3 Sept. 15	50 55.5	48.3	25 56 23.7	5 19.4	51 43.8	1 43.1
6460	" . . .	6.7	4 Sept. 15	50 59.0	44.9	25 56 40.7	4 57.3	51 43.9	1 38.0
6461	" . . .		4 Sept. 16	50 58.4	44.9	25 56 43.8	4 57.0	51 43.3	1 40.8
6462	" . . .	6	4 Sept. 17	50 59.0	44.9	25 56 46.2	4 56.7	51 43.9	1 42.9
6463	" . . .	6	4 Sept. 28	50 58.9	44.9	25 56 44.1	4 54.5	51 43.8	1 38.6
6464	Lalande 47140,2 .	8	4 Oct. 2	51 33.7	45.0	15 3 44.6	4 54.0	23 52 18.7	+15 8 38.6
6465	Groombridge 4219	7	3 July 26	53 33.7	49.3	40 53 11.2	5 36.2	23 54 23.0	+40 58 47.4
6466	" . . .	7	3 July 27	53 33.7	49.3	40 53 11.6	5 35.8	54 23.0	58 47.4
6467	Piazzi 267 . .	6	3 Aug. 20	53 37.1	48.7	33 26 58.1	5 27.2	23 54 25.8	+33 32 25.3
6468	" . . .	6	3 Aug. 21	53 37.0	48.7	33 26 59.8	5 27.0	54 25.7	32 26.8
6469	" . . .	7	4 Sept. 15	53 41.4	44.9	33 27 29.5	4 57.9	54 26.3	32 27.4
6470	Piazzi 268 . .	6.7	4 Sept. 17	23 53 54.4	+ 45.0	+25 27 12.6	+ 4 56.8	23 54 39.4	+25 32 9.4

No.	Name	Mag.	Date	App't α	Reduct'n	App't δ	Reduction	Mean equinox 1800.0 α	Mean equinox 1800.0 δ
				h m s	s	° ′ ″	′ ″	h m s	° ′ ″
6471	Piazzi 268 . .	6	4 Oct. 2	23 53 54.7	+ 45.0	+25 27 14.7	+ 4 53.9	23 54 39.7	+25 32 8.6
6472	Lalande 47216 .	6.7	4 Sept. 28	54 0.5	45.0	26 28 44.5	4 54.6	23 54 45.5	+26 33 39.1
6473	" . . .	6.7	4 Sept. 30	54 0.2	45.0	26 28 43.5	4 54.6	54 45.2	33 38.1
6474	86 Pegasi . .		3 July 23	54 37.8	49.6	12 11 27.4	5 28.4	23 55 27.4	+12 16 55.8
6475	Piazzi 276 . .		3 Aug. 17	55 25.8	49.0	27 49 39.2	5 26.7	23 56 14.8	+27 55 5.9
6476	" . . .	6	3 Aug. 21	55 26.2	48.9	27 49 38.3	5 25.7	56 15.1	55 4.0
6477	" . . .	6.7	3 Sept. 15	55 25.8	48.5	27 49 48.0	5 20.1	56 14.3	55 8.1
6478	Lalande 47264 .	7	4 Sept. 28	55 35.1	45.0	27 21 31.0	4 54.7	23 56 20.1	+27 26 25.7
6479	" . . .	7	4 Oct. 2	55 34.9	45.0	27 21 33.3	4 54.0	56 19.9	26 27.3
6480	" . . .	7	4 Oct. 6	55 35.0	45.0	27 21 35.8	4 53.3	56 20.0	26 29.1
6481	Groombridge 4237	7	3 July 26	56 31.8	49.5	38 56 35.0	5 35.7	23 57 21.3	+39 2 10.7
6482	" . . .	7	3 July 27	56 31.8	49.5	38 56 33.6	5 35.4	57 21.3	2 9.0
6483	21 Andromedæ α		3 July 19	57 14.2	49.8	27 53 34.1	5 34.3	23 58 4.0	+27 59 8.4
6484	" . .		3 Aug. 17	57 15.1	49.1	27 53 45.2	5 26.8	58 4.2	59 12.0
6485	" . . .		3 Aug. 20	57 15.5	49.0	27 53 44.0	5 25.8	58 4.5	59 9.8
6486	" . . .		3 Aug. 21	57 15.2	49.0	27 53 43.9	5 25.6	58 4.2	59 9.5
6487	" . . .		3 Sept. 15	57 15.1	48.6	27 53 52.5	5 19.7	58 3.7	59 12.2
6488	" . . .		4 Sept. 15	57 19.3	45.2	27 54 14.9	4 57.6	58 4.5	59 12.5
6489	" . . .		4 Sept. 16	57 18.9	45.2	27 54 9.2	4 57.4	58 4.1	59 6.6
6490	" . . .		4 Sept. 17	57 19.7	45.2	27 54 13.2	4 57.1	58 4.9	59 10.3
6491	" . . .	2.3	4 Sept. 28	57 18.6	45.1	27 54 15.4	4 54.8	58 3.7	59 10.2
6492*	" . . .		4 Sept. 30	57 19.3	45.1	27 54 17.0	4 54.4	58 4.4	59 11.4
6493	" . . .		4 Oct. 2	57 19.0	45.1	27 54 20.8	4 54.1	58 4.1	59 14.9
6494	87 Pegasi μ		3 July 23	57 55.0	49.7	17 0 32.5	5 29.9	23 58 44.7	+17 6 2.4
6495*	22 Andromedæ .	5.6	3 July 26	59 8.5	49.8	44 51 53.7	5 37.3	23 59 58.3	+44 57 31.0
6496	" . . .		3 July 27	59 8.4	49.8	44 51 54.0	5 37.0	59 58.2	57 31.0
6497	" . . .		3 Sept. 15	23 59 10.3	+ 48.6	+44 52 7.9	+ 5 21.8	23 59 58.9	+44 57 29.7

NOTES TO CATALOGUE.

No. 40 apparently the same star as No. 39.

189 δ is 30″ larger than No. 190 = Str. Cat. Gen. 75.

372 δ is 30″ smaller than Arg. 52 = Piazzi 185.

923 δ is 5′ larger than Lal. 10975 = W. 1341,2.

2934 α is 2ˢ smaller than Lal. 23233 = W. 373.

3738 δ is 8′ smaller than Lal. 27036 = W. 933.

3952 δ is 30″ larger than W. 329.

4501 α is 25ˢ smaller than Lal. 31597 = W. 469.

5308 δ is 30″ larger than Lal. 38423.

5708 δ is 1′ 30″ larger than Lal. 41055,6 = Piazzi 10.

6327 δ is 40″ larger than Lal. 46022 = W. 459.

CORRIGENDA.

P. 12, l. 25, for "time T" read "approximate sidereal time."

P. 20, for $\xi = 19° 20'$ *dele* the negative sign.

P. 32, l. 21, omit No. 3174 from the list.

P. 112, l. 10–14, observations of 1784, June 22, add 17h 14m to the numbers in columns *T* and *app. sid. time.*

Pp. 129–132, subtract 2m from the numbers in column *T.* for Oct. 9.

P. 206, No. 3174, omit the †. The star is Taylor 6044 = Brisbane 4343.

THE SATURNIAN SYSTEM.

BY BENJAMIN PEIRCE.

THE ring is the characteristic feature of the Saturnian system, and its theory is the chief object of the present investigation. Observation has shown the ring of Saturn not to be one, but to be subdivided into two or, possibly, more concentric rings. The mutual action of these rings cannot be neglected in the complete theory, nor the reciprocal action of the rings and the satellites. But the analysis properly commences with the consideration of a single elementary ring. The actual ring is thin, which facilitates the computations; but it is proposed to extend this memoir, which must be regarded as merely introductory, to the research into the attractions of any ring, however thick. Such a ring is, geometrically, a hollow cylinder, and the resulting formulæ will be found to be curious and novel aggregates of discontinuous terms, in which the discontinuities unexpectedly balance each other and leave an uninterrupted continuity in the numbers deduced from the formulæ.

1. The ring is assumed to be of uniform density and thickness, and to fill the space contained between two co-axial and concentric circular cylinders. The following notation is adopted:—

$2b$ = the length of the cylinder or the thickness of the ring,
a_2 = the radius of the base of the outer cylinder,
a_1 = the radius of the base of the inner cylinder,
r = the distance of the attracted point from the axis of the cylinder,
ϱ = the distance of a particle of the ring from the axis,
φ = the angle from r to ϱ.

By the equatorial plane, or simply *the plane of the ring*, is to be understood the plane which is drawn perpendicular to the axis and midway between the bases.

$z =$ the distance of the attracted point from the plane of the ring,
$\zeta =$ the distance of the particle from the plane of the ring,
$f =$ the distance of the attracted point from the particle.

The following notation is also introduced into this memoir:*

$$\text{J} = \sqrt{-1},$$
$$\mathfrak{c} = \text{the ratio of the circumference to the diameter of the circle,}$$
$$= 3.1415926536,$$
$$\mathfrak{b} = \text{the base of Naperian logarithms,}$$
$$= 2.7182818285,$$

which gives

$$\sqrt{\mathfrak{b}^{\mathfrak{c}}} = \text{J}^{-\text{J}} = 4.810477381.$$

If, then,

$$\text{F} = \text{any function of } \varrho \text{ and } \zeta = \text{F}(\varrho, \zeta)$$

let

$$\begin{aligned}
\text{F}_2 &= \text{F}(\varrho,\ b), & \text{F}_0 &= \text{F}(\varrho,\ 0), & \text{F}_1 &= \text{F}(\varrho,\ -b),\\
\text{F}_{2m} &= \text{F}(a_m, b), & \text{F}_{0m} &= \text{F}(a_m, 0), & \text{F}_{1m} &= \text{F}(a_m, -b),\\
\text{F}_{20} &= \text{F}(0,\ b), & \text{F}_{00} &= \text{F}(0,\ 0), & \text{F}_{10} &= \text{F}(0,\ -b),\\
\text{F}_{\zeta 0} &= \text{F}(0,\ \zeta),\\
\text{F}_{(0)} &= \text{the value of F when } z \text{ vanishes,}\\
\text{F}^{(0)} &= \text{the value of F when } r \text{ vanishes,}\\
\text{F}^{(0)}_{(0)} &= \text{the value of F when } r \text{ and } z \text{ vanish.}
\end{aligned}$$

Let, moreover,

$$\begin{aligned}
k &= \text{the density of the cylinder,}\\
d\sigma &= \varrho\, d\varrho\, d\varphi\, d\zeta = \text{the volume of a particle,}\\
d\psi &= \varrho\, d\varrho\, d\varphi,\\
\Omega &= k \int_\sigma \frac{1}{f} = \text{the potential of the ring for the attracted point.}
\end{aligned}$$

The value of f is given by the equation,

$$\begin{aligned}
f^2 &= r^2 + \varrho^2 - 2r\varrho\cos\varphi + (z-\zeta)^2\\
&= (r+\varrho)^2 \sin^2 \tfrac{1}{2}\varphi + (r-\varrho)^2\cos^2\tfrac{1}{2}\varphi + (z-\zeta)^2\\
&= (r+\varrho)^2 - 4r\varrho\cos^2\tfrac{1}{2}\varphi + (z-\zeta)^2\\
&= (\varrho - r\cos\varphi)^2 + r^2\sin^2\varphi + (z-\zeta)^2.
\end{aligned}$$

* This notation is introduced in order to set free the letters i, π, and e, which are so much wanted for astronomical purposes. The sign for $\sqrt{-1}$ is similar in aspect to ι, and is nearly an inverted r. The sign for the ratio of the circumference to the diameter is nothing more than a c with the lower extremity extended and wound over the letter; while that for the Naperian base is nearly the letter b with the initial extremity bent down over the symbol.

2. The integration with reference to ζ gives, by familiar forms of integration,

$$\mathrm{D}_{\psi}\,\Omega = k\,(\Omega_2' - \Omega_1'),$$

in which

$$\Omega' = \log\,(f - z + \zeta).$$

3. When the ring is very thin, and the attracted point nearly in its plane, so that the second dimensions of z and b can be neglected, the formulæ give

$$\begin{aligned} f &= f_{0(0)} \\ \Omega' &= \log f + \frac{\zeta - z}{f}, \\ \Omega_2' &= \log f + \frac{b - z}{f}, \\ \Omega_1' &= \log f - \frac{b + z}{f}, \\ \Omega_2' - \Omega_1' &= \frac{2\,b}{f} = \frac{2\,b}{f_{0(0)}}, \end{aligned}$$

so that the result is the same as if the values were reduced to

$$\Omega_2' = -\,\Omega_1' = \frac{b}{f}.$$

4. In the same way, when the attracted point is so far from the cylinder, that the cube of b can be rejected in comparison with the square of the distance of the point, the formulæ give, by reduction,

$$\begin{aligned} f^2 &= f_0^2 - 2\,z\,\zeta + \zeta^2, \\ f &= f_0 - \frac{z\,\zeta}{f_0} + \frac{\zeta^2}{2\,f_0}\left(1 - \frac{z^2}{f_0^2}\right), \\ \Omega' &= \log\,(f_0 - z) + \frac{\zeta}{f_0} + \frac{z\,\zeta^2}{2\,f_0^2}, \\ \Omega_2' - \Omega_1' &= \frac{2\,b}{f_0}, \end{aligned}$$

which is the same as if the values were reduced to

$$\Omega_2' = -\,\Omega_1' = \frac{b}{f_0}.$$

5. The integration with reference to ϱ gives, by introducing

$$\begin{aligned} \Omega'' &= \textstyle\int_{\rho}\,(\varrho\,\Omega'), \\ \Omega_2'' &= \textstyle\int_{\rho}\,(\varrho\,\Omega_2') = \int_{\rho}\,[\varrho \log\,(f_2 - z + b)] \\ &= \tfrac{1}{2}\,\varrho^2 \log\,(f_2 - z + b) - \tfrac{1}{2}\textstyle\int_{\rho}\,[\varrho^2\,\mathrm{D}_{\rho} \log\,(f_2 - z + b)] \\ &= \tfrac{1}{2}\,\varrho^2 \log\,(f_2 - z + b) - \tfrac{1}{2}\textstyle\int_{\rho}\,\dfrac{\varrho^2\,\mathrm{D}_{\rho} f_2}{f_2 - z + b}. \end{aligned}$$

But the value of f^1 in § 1 gives

$$f\,\mathrm{D}_\rho f = \varrho - r\cos\varphi.$$

Hence

$$\Omega_2'' = \tfrac{1}{2}\varrho^2 \log(f_2 - z + b) - \int_\rho \frac{\varrho^2(\varrho - r\cos\varphi)}{2f_2(f_2 - z + b)}.$$

But, again, an easy reduction gives

$$\int_\rho \frac{\varrho^2(\varrho - r\cos\varphi)}{2f_2(f_2 - z + b)} = \int_\rho \frac{\varrho^2(\varrho - z\cos\varphi)\,(f_2 + z - b)}{2f_2[f_2^2 - (z-b)^2]} = \int_\rho \frac{\varrho^2(\varrho - r\cos\varphi)\,(f_2 + z - b)}{2f_2(r^2 + \varrho^2 - 2\varrho r\cos\varphi)}$$
$$= \int_\rho \frac{\varrho^2(\varrho - r\cos\varphi)\,(f_2 + z - b)}{2f_2 f_{0(0)}^2}.$$

Put, for the moment,

$$p = \varrho - r\cos\varphi,$$

and we find

$$f_2^2 = p^2 + r^2\sin^2\varphi + (z-b)^2,$$
$$\varrho^2 = p^2 + 2pr\cos\varphi + r^2\cos^2\varphi,$$
$$\varrho^2(\varrho - r\cos\varphi) = p^3 + 2p^2 r\cos\varphi + pr^2\cos^2\varphi$$
$$= (p^2 + r^2\sin^2\varphi)(p + 2r\cos\varphi) + pr^2\cos 2\varphi - r^3\sin\varphi\sin 2\varphi,$$
$$p^2 + r^2\sin^2\varphi = \varrho^2 + r^2 - 2\varrho r\cos\varphi = f_{0(0)}^2,$$
$$\int_\rho \frac{\varrho^2(\varrho - r\cos\varphi)}{2f_2(f_2 - z + p)} = \tfrac{1}{2}\int_p (p + 2r\cos\varphi) + \int_p \frac{(z-b)(p + 2r\cos\varphi)}{2f_2} + \int_p \frac{pr^2\cos 2\varphi - r^3\sin\varphi\sin 2\varphi}{2f_{0(0)}^2}$$
$$+ \int_p \frac{(z-b)(pr^2\cos 2\varphi - r^3\sin\varphi\sin 2\varphi)}{2f_2 f_{0(0)}^2}.$$

The terms of this last integral, which do not involve $z - b$ can be omitted, because the same terms must recur in the expression of Ω_1'', and must consequently disappear from the value of Ω.

We find also, by the integral tables,

$$\int_p \frac{p}{f_2} = f_2,$$
$$\int_p \frac{1}{f_2} = \log(f_2 + p),$$
$$\int_p \frac{p}{f_2 f_{0(0)}^2} = \frac{1}{2(z-b)}\log\frac{f_2 - z + b}{f_2 + z - b} = \frac{1}{z-b}\log(f_2 - z + b) - \frac{1}{z-b}\log f_{0(0)}$$
$$= \frac{1}{z-b}\log f_{0(0)} - \frac{1}{z-b}\log(f_2 + z - b),$$
$$\int_p \frac{1}{f_2 f_{0(0)}^2} = \frac{1}{r\sin\varphi\,(z-b)}\tan^{[-1]}\frac{p(z-b)}{r\sin\varphi\, f_2}.$$

Hence

$$\Omega_2'' = \tfrac{1}{2}(\varrho^2 + r^2\cos 2\varphi)\log(f_2 + z - b) - \tfrac{1}{2}(z-b)f_2$$
$$- (z-b)\,r\cos\varphi\log(f_2 + \varrho - r\cos\varphi)$$
$$+ \tfrac{1}{2}r^2\sin 2\varphi\tan^{[-1]}\frac{(\varrho - r\cos\varphi)(z-b)}{f_2\, r\sin\varphi},$$

and

$$\tfrac{1}{k}\mathrm{D}_\phi\Omega = \Omega_{22}'' - \Omega_{12}'' - \Omega_{21}'' + \Omega_{11}''.$$

6. When the cube can be rejected, as in § 4, the integration of the formula of that section gives

$$-\Omega_1'' = \Omega_2'' = \int_\rho \frac{b\varrho}{f_0} = \int_p \frac{b(p + r\cos\varphi)}{f_0}$$
$$= bf_0 + br\cos\varphi\log(f_0 + \varrho - r\cos\varphi).$$

7. When the point is so near the axis of the ring that the square of r can be rejected, the value of Ω_2'' is easily found to be

$$\Omega_2'' = -\tfrac{1}{2}\varrho^2\log(f_2^{(0)} + z - b) - \frac{r\varrho\cos\varphi}{f_2^{(0)}(f_2^{(0)} + z - b)}$$
$$-\tfrac{1}{2}(z-b)\left[f_2^{(0)} - \frac{r\varrho\cos\varphi}{f_2^{(0)}} + 2r\cos\varphi\log(f_2^{(0)} + \varrho)\right].$$

8. In order to obtain the last integral of Ω, which is to be performed in reference to φ as the variable, elliptic integrals must be introduced; and the following notation is adopted, which does not differ materially from the ordinary notation:

$$\sin\theta = \sin i\sin\varphi,$$
$$\mathrm{F}_i\varphi = \int_\phi \sec\theta,$$
$$\mathrm{E}_i\varphi = \int_\phi \cos\theta,$$
$$\mathrm{F}_i^1 = \mathrm{F}_i(\tfrac{1}{2}\odot), \qquad \mathrm{E}_i^1 = \mathrm{E}_i(\tfrac{1}{2}\odot).$$

If we also assume

$$\mathrm{H}_i\varphi = (\mathrm{F}_i^1 - \mathrm{E}_i^1)\,\mathrm{F}_{\mathrm{co}\,i}\varphi - \mathrm{F}_i^1\,\mathrm{E}_{\mathrm{co}\,i}\,\varphi + \tfrac{1}{2}\odot$$

in which

$$\mathrm{co}\,i = \tfrac{1}{2}\odot - i$$

we obtain from well known formulæ of elliptic integrals

$$\frac{\cos^2 i\sin\eta\cos\eta}{\sqrt{(1-\cos^2 i\sin^2\eta)}}\left[\int_{0\ \phi}^{\frac{1}{2}\odot}\frac{\sec\theta}{\cos^2\varphi + \cos^2 i\sin^2\eta\sin^2\varphi} - \mathrm{F}_i^1\right] = \mathrm{H}_i\eta,$$

$$\frac{\sqrt{(1-\cos^2 i\sin^2\eta)}}{\sin\eta\cos\eta}\left[\int_{0\ \phi}^{\frac{1}{2}\odot}\frac{\sec\theta}{1+\cot^2\eta\sin^2\varphi} - \sin^2\eta\,\mathrm{F}_i^1\right] = \mathrm{H}_i\eta.$$

We have also the following formulæ of elliptic integrals, which are given in elementary treatises:

$$\int_\phi \frac{\sec\theta}{\sin^2\varphi} = \mathrm{F}_i\varphi - \mathrm{E}_i\varphi - \cot\varphi\cos\theta,$$
$$\int_\phi (\tan^2\tfrac{1}{2}\varphi\sec\theta) = 2\tan\tfrac{1}{2}\varphi\cos\theta + \mathrm{F}_i\varphi - 2\,\mathrm{E}_i\varphi,$$
$$\int_\phi (\sin^2\varphi\sec\theta) = \frac{1}{\sin^2 i}(\mathrm{F}_i\varphi - \mathrm{E}_i\varphi),$$
$$\int_\phi (\sec^2\varphi\sec\theta) = \mathrm{F}_i\varphi - \sec^2 i(\mathrm{E}_i\varphi - \tan\varphi\cos\theta),$$
$$\int_\phi \sec^3\theta = \sec^2 i\,\mathrm{E}_i\varphi - \tan^2 i\sin\varphi\cos\varphi\sec\theta.$$

By putting

$$\varphi' = \tfrac{1}{2}\odot - \tfrac{1}{2}\varphi,$$

we have in all the forms in which the function to be integrated has the same value for negative as for positive values of φ',

$$\int_{0\;\phi}^{2\odot} = 2\int_{-\frac{1}{2}\odot\;\phi'}^{\frac{1}{2}\odot} = 4\int_{0\;\phi'}^{\frac{1}{2}\odot}.$$

We also have

$$f\,\mathrm{D}_\phi f = r\,\varrho \sin\varphi,$$

$$\int_{0\;\phi}^{2\odot}\Big[\cos 2\varphi \log(f_2+z-b)\Big] = -\tfrac{1}{2}\int_{0\;\phi}^{2\odot}\left(\sin 2\varphi\,\frac{\mathrm{D}_\phi f_2}{f_2+z-b}\right) = -\int_{0\;\phi}^{2\odot}\frac{\varrho\, r \sin^2\varphi\cos\varphi}{f_2\,(f_2+z-b)}$$

$$= -\int_{0\;\varphi}^{2\odot}\frac{\varrho\, r\sin^2\varphi\cos\varphi\,(f_2-z+b)}{f_2\,[f_2^2-(z-b)^2]}$$

$$= -\int_{0\;\phi}^{2\odot}\frac{\varrho\, r\sin^2\varphi\cos\varphi\,(f_2-z+b)}{f_2 f^2_{0(0)}}$$

$$= -\int_{0\;\phi}^{2\odot}\frac{\varrho\, r\sin^2\varphi\cos\varphi}{f^2_{0(0)}} + (z-b)\int_{0\;\phi}^{2\odot}\frac{\varrho\, r\sin^2\varphi\cos\varphi}{f_2 f^2_{0(0)}}.$$

The first term of this last member, occurring in both Ω_2'' and Ω_1'', may be omitted, which leaves, for the present case,

$$\int_{0\;\phi}^{2\odot}\Big[\cos 2\varphi\log(f_2+z-b)\Big] = \int_{0\;\phi}^{2\odot}\frac{(z-b)\,\varrho\, r\sin^2\varphi\cos\varphi}{f_2 f^2_{0(0)}}.$$

But

$$\varrho\, r\sin^2\varphi\cos\varphi = -\varrho\, r\cos^3\varphi + \varrho\, r\cos\varphi$$

$$= \left(\tfrac{1}{2}\cos^2\varphi + \frac{\varrho^2+r^2}{4\varrho r}\cos\varphi + \frac{(\varrho^2-r^2)^2}{8\varrho^2 r^2}\right) f^2_{0(0)} - \frac{(\varrho^2+r^2)(\varrho^2-r^2)^2}{8\varrho^2 r^2},$$

which gives

$$(a)\qquad \int_{0\;\phi}^{2\odot}\Big[\cos 2\varphi\log(f_2+z-b)\Big] = (z-b)\int_{0\;\phi}^{2\odot}\left(\frac{\cos^2\varphi}{2f_2} + \frac{\varrho^2+r^2}{4\varrho r f_2}\cos\varphi + \frac{(\varrho^2-r^2)^2}{8\varrho^2 r^2 f_2}\right)$$

$$-\frac{(z-b)(\varrho^2+r^2)(\varrho^2-r^2)^2}{8\varrho^2 r^2}\int_{0\;\phi}^{2\odot}\frac{1}{f_2 f^2_{0(0)}}.$$

Again we find

$$\int_{0\;\phi}^{2\odot}\Big[r\cos\varphi\log(f_2+\varrho-r\cos\varphi)\Big] = -\int_{0\;\phi}^{2\odot}\frac{r\sin\varphi\,(\mathrm{D}_\phi f_2 + r\sin\varphi)}{f_2+\varrho-r\cos\varphi}$$

$$= -\int_{0\;\phi}^{2\odot}\frac{r^2\sin^2\varphi\,(f_2+\varrho)}{f_2\,(f_2+\varrho-r\cos\varphi)}$$

$$= -\int_{0\;\phi}^{2\odot}\frac{r^2\sin^2\varphi\,(f_2+\varrho)(f_2-\varrho+r\cos\varphi)}{f_2\,[f_2^2-(\varrho-r\cos\varphi)^2]}$$

$$= -\int_{0}^{2\odot}{}_{\phi} \frac{r^2 \sin^2\varphi\,(f_2^2 - \varrho^2 + f_2 r\cos\varphi + \varrho r\cos\varphi)}{f_2\,[r^2\sin^2\varphi + (z-b)^2]}$$

$$= -\int_{0}^{2\odot}{}_{\phi} \frac{r^2 \sin^2\varphi\cos\varphi}{r^2\sin^2\varphi + (z-b)^2} - \int_{0}^{2\odot}{}_{\phi} \frac{r^2\sin^2\varphi\,[r^2 + (z-b)^2 - \varrho r\cos\varphi]}{f_2\,[r^2\sin^2\varphi + (z-b)^2]}.$$

The first term of this last member occurs in Ω''_{22} and Ω''_{12} just as in Ω''_{21} and Ω''_{11}, and may, therefore, be rejected; which leaves

$$\int_{0}^{2\odot}{}_{\phi}\Big[r\cos\varphi\log(f_2 + \varrho - r\cos\varphi)\Big] = -\int_{0}^{2\odot}{}_{\phi} \frac{[r^2\sin^2\varphi + (z-b)^2 - (z-b)^2]\,[r^2 + (z-b)^2 - \varrho r\cos\varphi]}{f_2\,[r^2\sin^2\varphi + (z-b)^2]}$$

$$(b) \qquad = -\int_{0}^{2\odot}{}_{\phi} \frac{r^2 + (z-b)^2 - \varrho r\cos\varphi}{f_2} + (z-b)^2 \int_{0}^{2\odot}{}_{\phi} \frac{r^2 + (z-b)^2 - \varrho r\cos\varphi}{f_2\,(r^2 + (z-b)^2 - r^2\cos^2\varphi)};$$

again we find

$$\int_{0}^{2\odot}{}_{\phi}\Big[\sin 2\varphi\tan^{[-1]}\frac{(\varrho - r\cos\varphi)(z-b)}{f_2 r\sin\varphi}\Big] = \int_{0}^{2\odot}{}_{\phi}\Big[\tfrac{1}{2}\cos 2\varphi\,\frac{r(z-b)[f_2 r\sin^2\varphi - (\varrho - r\cos\varphi)(f_2\cos\varphi + \sin\varphi D_\phi f_2)]}{f_2^2 r^2\sin^2\varphi + (\varrho - r\cos\varphi)^2(z-b)^2}\Big]$$

$$= (z-b)\int_{0}^{2\odot}{}_{\phi}\Big[\tfrac{1}{2} r\cos 2\varphi\,\frac{f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\,r\varrho\sin^2\varphi}{f_2\,[r^2\sin^2\varphi + (z-b)^2]\,f_{0(0)}^2}\Big].$$

The fraction, under the sign of integration, may for a moment be denoted by $f_2^{-1}V$; thus

$$V = \tfrac{1}{2} r\cos 2\varphi\,\frac{f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\,r\varrho\sin^2\varphi}{[r^2\sin^2\varphi + (z-b)^2]\,f_{0(0)}^2},$$

which can be developed into the form

$$V = \frac{M}{f_{0(0)}^2} + \frac{N}{r^2\sin^2\varphi + (z-b)^2} + P.$$

The value of M is found by putting

$$f_{0(0)}^2 = 0,$$

in the value of

$$V f_{0(0)}^2;$$

that of N is found by putting

$$r^2\sin^2\varphi = -(z-b)^2,$$

in the value of

$$V\,[r^2\sin^2\varphi + (z-b)^2];$$

and that of P is found by division.

First, then, to find M, the equation

$$f_{0(0)}^2 = r^2 + \varrho^2 - 2r\varrho\cos\varphi = 0,$$

gives the reduced values

$$f_2^2 = (z-b)^2,$$

$$2\cos\varphi = \frac{\varrho}{r} + \frac{r}{\varrho} = \frac{\varrho^2 + r^2}{\varrho r},$$

$$r - \varrho \cos\varphi = \frac{r^2 - \varrho^2}{2r},$$

$$\varrho - r\cos\varphi = \frac{\varrho^2 - r^2}{2\varrho},$$

$$1 + \cos\varphi = \frac{(\varrho + r)^2}{2\varrho r},$$

$$1 - \cos\varphi = -\frac{(\varrho - r)^2}{2\varrho r},$$

$$\sin^2\varphi = -\frac{(\varrho^2 - r^2)^2}{4\varrho^2 r^2},$$

$$\cos^2\varphi = \frac{\varrho^4 + r^4}{2\varrho^2 r^2},$$

$$f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\, r\varrho\sin^2\varphi = \frac{r^2 - \varrho^2}{2r\varrho}\left[(z-b)^2\varrho - \frac{(\varrho^2 - r^2)^2}{4\varrho}\right],$$

$$r^2\sin^2\varphi + (z-b)^2 = (z-b)^2 - \frac{(\varrho^2 - r^2)^2}{4\varrho^2},$$

$$\mathrm{M} = \mathrm{V} f^2_{0(0)} = \tfrac{1}{2} r \cos 2\varphi \frac{f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\, r\varrho\sin^2\varphi}{r^2\sin^2\varphi + (z-b)^2}$$

$$(c) \qquad = \tfrac{1}{2} r\varrho\, \frac{(\varrho^4 + r^4)\,(r^2 - \varrho^2)}{4r^3\varrho^3} = \frac{(\varrho^4 + r^4)\,(r^2 - \varrho^2)}{8r^2\varrho^2}.$$

Secondly, to find N, the equation

$$r^2\sin^2\varphi = -(z-b)^2,$$

gives the reduced values

$$\cos^2\varphi = \frac{r^2 + (z-b)^2}{r^2},$$

$$\cos 2\varphi = \frac{r^2 + 2(z-b)^2}{r^2},$$

$$\frac{1}{f^2_{0(0)}} = \frac{1}{\varrho^2 + r^2 - 2\varrho r\cos\varphi} = \frac{\varrho^2 + r^2 + 2\varrho r\cos\varphi}{(\varrho^2 + r^2)^2 - 4\varrho^2 r^2\cos^2\varphi} = \frac{\varrho^2 + r^2 + 2\varrho r\cos\varphi}{(\varrho^2 - r^2)^2 + 4\varrho^2 r^2\sin^2\varphi}$$

$$= \frac{\varrho^2 + r^2 + 2\varrho r\cos\varphi}{(\varrho^2 - r^2)^2 - 4\varrho^2(z-b)^2},$$

$$f_2^2(r - \varrho\cos\varphi) = r\varrho^2 + r^3 + r(z-b)^2 - [\varrho^3 + 3\varrho r^2 + \varrho(z-b)^2]\cos\varphi + 2\varrho^2 r\cos^2\varphi$$

$$= 3\varrho^2 r + r^3 + (2\varrho^2 + r^2)\frac{(z-b)^2}{r} - [\varrho^3 + 3\varrho r^2 + \varrho(z-b)^2]\cos\varphi,$$

$$-(\varrho - r\cos\varphi)\,\varrho r\sin^2\varphi = \left(\frac{\varrho^2}{r} - \varrho\cos\varphi\right)(z-b)^2,$$

$$f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\,\varrho r\sin^2\varphi = (3\varrho^2 + r^2)\frac{r^2 + (z-b)^2}{r} - [\varrho^3 + 3\varrho r^2 + 2\varrho(z-b)^2]\cos\varphi,$$

$$\frac{f_2^2(r - \varrho\cos\varphi) - (\varrho - r\cos\varphi)\,\varrho r\sin^2\varphi}{\varrho^2 + r^2 - 2\varrho r\cos\varphi} = \frac{(3\varrho^2 + r^2)(\varrho^2 + r^2)\frac{r^2 + (z-b)^2}{r} - 2\varrho r[\varrho^3 + 3\varrho r^2 + 2\varrho(z-b)^2]\cos^2\varphi}{(\varrho^2 - r^2)^2 - 4\varrho^2(z-b)^2}$$

$$+ \frac{2\varrho r(3\varrho^2 + r^2)\frac{r^2 + (z-b)^2}{r} - (\varrho^2 + r^2)[\varrho^3 + 3\varrho r^2 + 2\varrho(z-b)^2]}{(\varrho^2 - r^2)^2 - 4\varrho^2(z-b)^2}\cos\varphi$$

$$= \frac{r^2 + (z-b)^2}{r}\,\frac{(\varrho^2 + r^2)(3\varrho^2 + r^2) - 2\varrho[\varrho^3 + 3\varrho r^2 + 2\varrho(z-b)^2]}{(\varrho^2 - r^2)^2 - 4\varrho^2(z-b)^2}$$

$$+\frac{4\varrho^3(z-b)^2-\varrho(\varrho^2-r^2)^2}{(\varrho^2-r^2)^2-4\varrho^2(z-b)^2}\cos\varphi$$

$$=\frac{r^2+(z-b)^2}{r}-\varrho\cos\varphi,$$

$$\mathrm{N}=\mathrm{V}\,[r^2\sin^2\varphi+(z-b)^2]=\tfrac{1}{2}r\cos2\varphi\,\frac{f_2^2(r-\varrho\cos\varphi)-(\varrho-r\cos\varphi)\,\varrho\,r\sin^2\varphi}{f_{0(0)}^2}$$

$$=\frac{1}{2r^2}[r^2+2(z-b)^2]\,[r^2+(z-b)^2-\varrho\,r\cos\varphi]$$

$$(d)\qquad =\frac{1}{2r^2}(2f_{20}^2-r^2)\,(f_{20}^2-\varrho\,r\cos\varphi).$$

Lastly, to find P, we may neglect the terms which do not affect its value, which gives the reduced values

$$f_2^2(r-\varrho\cos\varphi)=2r\varrho^2\cos^2\varphi-[3r^2\varrho+\varrho^3+\varrho(z-b)^2]\cos\varphi+r^3+r\varrho^2+r(z-b)^2,$$

$$-(\varrho-r\cos\varphi)\,r\varrho\sin^2\varphi=-r^2\varrho\cos^3\varphi+r\varrho^2\cos^2\varphi+r^2\varrho\cos\varphi-\varrho^2 r,$$

$$f_2^2(r-\varrho\cos\varphi)-(\varrho-r\cos\varphi)\,r\varrho\sin^2\varphi=-r^2\varrho\cos^3\varphi+3r\varrho^2\cos^2\varphi-[2r^2\varrho+\varrho^3+\varrho(z-b)^2]\cos\varphi,$$

$$\tfrac{1}{2}r\cos2\varphi\,[f_2^2(r-\varrho\cos\varphi)-(\varrho-r\cos\varphi)\,r\varrho\sin^2\varphi]=-r^3\varrho\cos^5\varphi+3r^2\varrho^2\cos^4\varphi-[\tfrac{3}{2}r^2\varrho+r\varrho^3+r\varrho(z-b)^2]\cos^3\varphi,$$

$$[r^2\sin^3\varphi+(z-b)^2]f_{0(0)}^2=2r^3\varrho\cos^3\varphi-r^2(r^2+\varrho^2)\cos^2\varphi-2r\varrho\,[r^2+(z-b)^2]\cos\varphi.$$

The quotient of the second members of the two last equations gives

$$(e)\qquad \mathrm{P}=-\tfrac{1}{2}\cos^2\varphi+\left(\frac{5\varrho}{4r}-\frac{r}{4\varrho}\right)\cos\varphi+\frac{\varrho^2}{8r^2}-\tfrac{3}{4}-\frac{r^2}{8\varrho^2}-\frac{(z-b)^2}{r^2}.$$

The combination of the equations (*a*), (*b*), (*c*), (*d*), and (*e*) gives

$$\Omega_2'''=\int_0^{2\circledcirc}\!\!{}_\phi\,\Omega_2''=-\varrho^2\int_0^{\circledcirc}\!\!{}_\phi\log(f_2+z-b)$$

$$-\left[\frac{(z-b)(\varrho^2+r^2)(\varrho^2-r^2)^2}{16\varrho^2}+\frac{(z-b)(\varrho^4+\varrho^4)(\varrho^2-r^2)}{16\varrho^2}\right]\int_0^{2\circledcirc}\!\!{}_\phi\frac{1}{f_2f_{0(0)}^2}$$

$$+\tfrac{1}{4}(z-b)\,[r^2-2(z-b)^2]\int_0^{2\circledcirc}\!\!{}_\phi\frac{r^2+(z-b)^2-\varrho\,r\cos\varphi}{[r^2\sin^2\varphi+(z-b)^2]f_2}-\tfrac{1}{2}(z-b)\int_0^{2\circledcirc}\!\!{}_\phi f_2$$

$$+\int_0^{2\circledcirc}\!\!{}_\phi\frac{z-b}{f_2}\Big[\tfrac{1}{4}r^2\cos^2\varphi+\frac{r}{8\varrho}(\varrho^2+r^2)\cos\varphi+\frac{(\varrho^2-r^2)^2}{16\varrho^2}-\varrho\,r\cos\varphi+r^2+(z-b)^2$$

$$-\tfrac{1}{4}r^2\cos^2\varphi+\left(\tfrac{5}{8}\varrho\,r-\frac{r^3}{8\varrho}\right)\cos\varphi+\frac{\varrho^2}{16}-\tfrac{3}{8}r^2-\frac{r^4}{16\varrho^2}-\tfrac{1}{2}(z-b)^2\Big],$$

$$(f)\qquad =-\varrho^2\int_0^{\circledcirc}\!\!{}_\phi\log(f_2+z-b)+\tfrac{1}{4}(z-b)\,[r^2-2(z-b)^2]\int_0^{2\circledcirc}\!\!{}_\phi\frac{r^2+(z-b)^2-\varrho\,r\cos\varphi}{[r^2\sin^1\varphi+(z-b)^2]\,f_2}$$

$$+\tfrac{1}{8}\varrho^2(r^2-\varrho^2)(z-b)\int_0^{2\circledcirc}\!\!{}_\phi\frac{1}{f_2f_{0(0)}^2}-\tfrac{3}{8}(z-b)\int_0^{2\circledcirc}\!\!{}_\phi\left[f_2-\frac{r^2+(z-b)^2}{f_2}\right].$$

In order to reduce the preceding integrations to the forms of elliptic integrals, we may assume

$$\cos^2 i = \frac{(\varrho - r)^2 + (z - \zeta)^2}{(\varrho + r)^2 + (z - \zeta)^2},$$

$$\sin \eta' = \frac{\cos i_{0(0)}}{\cos i},$$

$$\sin \eta'' \cos i = \sin \eta''' = \frac{\sqrt{(z - \zeta)^2}}{r + \sqrt{[r^2 + (z - \zeta)^2]}}.$$

These values give

$$\sin^2 i_2 = \frac{4 \varrho r}{(\varrho + r)^2 + (z - b)^2},$$

$$f_2^2 = [(\varrho + r)^2 + (z - b)^2] (1 - \sin^2 i_2 \sin^2 \varphi'),$$

$$f_{0(0)}^2 = (\varrho + r)^2 (1 - \sin^2 i_{0(0)} \sin^2 \varphi')$$

$$= (\varrho - r)^2 [\cos^2 \varphi' + \sin^2 \eta'_2 \cos^2 i_2 \sin^2 \varphi'],$$

$$\cos^2 i_2 \cos^2 \eta'_2 = \cos^2 i_2 - \cos^2 i_2 \sin^2 \eta'_2 = \cos^2 i_2 - \cos^2 i_{0(0)}$$

$$= \frac{[(\varrho + r)^2 - (\varrho - r)^2] (z - b)^2}{(\varrho + r)^2 [(\varrho + r)^2 + (z - b)^2]} = \frac{4 \varrho r (z - b)^2}{[(\varrho + r)^2 + (z - b)^2] (\varrho + r)},$$

$$\sin^2 \eta'_2 \cos^2 \eta'_2 \cos^4 i_2 = \frac{4 \varrho r (\varrho - r)^2 (z - b)^2}{[(\varrho + r)^2 + (z - b)^2] (\varrho + r)^4},$$

$$\frac{\sin^2 \eta'_2 \cos^2 \eta'_2 \cos^4 i_2}{1 - \sin^2 \eta'_2 \cos^2 i_2} = \frac{(\varrho - r)^2 (z - b)^2}{[(\varrho + r)^2 + (z - b)^2] (\varrho + r)^2},$$

$$\tfrac{1}{8} \varrho^2 (r^2 - \varrho^2) (z - b) \int_0^{2\odot} \frac{1}{f_2 f_{0(0)}^2} d\phi = \tfrac{1}{2} \frac{\varrho^2 (r - \varrho) (z - b)}{(\varrho + r) \sqrt{[(\varrho + r)^2 + (z - b)^2]}} \int_0^{\frac{1}{2}\odot} \frac{\sec \theta_2 \, d\phi}{\cos^2 \varphi + \sin^2 \eta'_2 \cos^2 i_2 \sin^2 \varphi}$$

$$= \tfrac{1}{2} \varrho^2 \frac{\sqrt{(r - \varrho)^2}}{r - \varrho} \frac{\sqrt{(z - b)^2}}{z - b} \frac{\cos^2 i_2 \sin \eta'_2 \cos \eta'_2}{\sqrt{(1 - \sin^2 \eta'_2 \cos^2 i_2)}} \int_0^{\frac{1}{2}\odot} \frac{\sec \theta_2 \, d\phi}{\cos^2 \varphi + \sin^2 \eta'_2 \cos^2 i_2 \sin^2 \varphi}$$

$$(g) \qquad = \tfrac{1}{2} \varrho^2 \frac{\sqrt{(r - \varrho)^2}}{r - \varrho} \frac{\sqrt{(z - b)^2}}{z - b} \mathrm{H}_{i_2} \eta'_2 + \tfrac{1}{2} \frac{\varrho^2 (r - \varrho) (z - b)}{[\varrho + r) \sqrt{[(\varrho + r)^2 + (z - b)^2]}} \mathrm{F}^1_{i_2}.$$

Again, we have

$$r^2 \sin^2 \varphi + (z - b)^2 = r^2 + (z - b)^2 - r^2 \cos^2 \varphi = f_{20}^2 - r^2 \cos^2 \varphi$$

$$= (f_{20} + r \cos \varphi) (f_{20} - r \cos \varphi),$$

$$\frac{r^2 + (z - b)^2 - \varrho r \cos \varphi}{r^2 \sin^2 \varphi + (z - b)^2} = \frac{f_{20}^2 - \varrho r \cos \varphi}{f_{20}^2 - r^2 \cos^2 \varphi} = \tfrac{1}{2} \frac{f_{20} + \varrho}{f_{20} + r \cos \varphi} + \tfrac{1}{2} \frac{f_{20} - \varrho}{f_{20} - r \cos \varphi},$$

$$\sin \eta''_2 \cos i_2 = \frac{\sqrt{(z - b)^2}}{r + f_{20}} = \frac{\sqrt{(f_{20}^2 - r^2)}}{f_{20} + r} = \sqrt{\frac{f_{20} - r}{f_{20} + r}},$$

$$1 - \sin^2 \eta''_2 \cos^2 i_2 = \frac{2 r}{f_{20} + r} = \sin^2 i_2 + \cos^2 i_2 \cos^2 \eta''_2,$$

$$\cos^2 i_2 \cos^2 \eta_2'' = \frac{2r}{f_{20}+r} - \frac{4\varrho r}{\varrho^2+2\varrho r+f_{20}^2} = \frac{2r(\varrho^2-2\varrho f_{20}+f_{20}^2)}{(f_{20}+r)[(\varrho+r)^2+(z-b)^2]}$$

$$= \frac{2r(f_{20}-\varrho)^2}{(f_{20}+r)[(\varrho+r)^2+(z-b)^2]},$$

$$\frac{\sin^2\eta_2''\cos^2\eta_2''\cos^4 i_2}{1-\sin^2\eta_2''\cos^2 i_2} = \frac{(f_{20}-\varrho)^2(z-b)^2}{(f_{20}+r)^2[(\varrho+r)^2+(z-b)^2]}.$$

We also have

$$\sin^2\eta_2''' = \frac{f_{20}-r}{f_{20}+r},$$

$$\cos^2\eta_2''' = \frac{2r}{f_{20}+r},$$

$$\cot^2\eta_2''' = \frac{2r}{f_{20}-r},$$

$$1-\cos^2 i_2 \sin^2\eta_2''' = \cos^2\eta_2''' + \sin^2 i_2 \sin^2\eta_2''' = \frac{2r}{f_{20}+r} + \frac{4\varrho r(f_{20}-r)}{(f_{20}+r)(\varrho^2+2\varrho r+f_{20}^2)}$$

$$= \frac{2r(f_{20}^2+2\varrho f_{20}+\varrho^2)}{(f_{20}+r)(\varrho^2+2\varrho r+f_{20}^2)} = \frac{2r(f_{20}+\varrho)^2}{(f_{20}+r)[(\varrho+r)^2+(z-b)^2]},$$

$$\frac{1-\cos^2 i_2\sin^2\eta_2'''}{\sin^2\eta_2'''\cos^2\eta_2'''} = \frac{(f_{20}+\varrho)^2(z-b)^2}{(f_{20}-r)^2[(\varrho+r)^2+(z-b)^2]},$$

$$\tan^2\eta_2'''(1-\cos^2 i_2\sin^2\eta_2''') = \frac{(f_{20}+\varrho)^2(z-b)^2}{(f_{20}+r)^2[(\varrho+r)^2+(z-b)^2]},$$

$$(z-b)\int_0^{2\circledcirc}\!\!{}_\phi \frac{r^2+(z-b)^2-\varrho r\cos\varphi}{[r^2\sin^2\varphi+(z-b)^2]f_2} = \tfrac{1}{2}(z-b)\int_0^{2\circledcirc}\!\!{}_\phi \frac{f_{20}-\varrho}{(f_{20}-r\cos\varphi)f_2} + \tfrac{1}{2}(z-b)\int_0^{2\circledcirc}\!\!{}_\phi \frac{f_{20}+\varrho}{(f_{20}+r\cos\varphi)f_2}$$

$$= 2(z-b)\int_0^{\frac{1}{2}\circledcirc}\!\!{}_{\phi'} \frac{f_{20}-\varrho}{(f_{20}+r-2r\sin^2\varphi')f_2} + 2(z-b)\int_0^{\frac{1}{2}\circledcirc}\!\!{}_{\phi'} \frac{f_{20}+\varrho}{(f_{20}-r+2r\sin^2\varphi')f_2}$$

$$= \frac{2\sqrt{(z-b)^2}}{z-b}\,\frac{\sqrt{(f_{20}-\varrho)^2}}{f_{20}-\varrho}\,\frac{\cos^2 i_2\sin\eta_2''\cos\eta_2''}{\sqrt{(1-\cos^2 i_2\sin^2\eta_2'')}}\int_0^{\frac{1}{2}\circledcirc}\!\!{}_\phi \frac{\sec\theta_2}{\cos^2\varphi+\cos^2 i_2\sin^2\eta_2''\sin^2\varphi}$$

$$+ \frac{2\sqrt{(z-b)^2}}{z-b}\,\frac{\sqrt{(1-\cos^2 i_2\sin^2\eta_2''')}}{\sin\eta_2'''\cos\eta_2'''}\int_0^{\frac{1}{2}\circledcirc}\!\!{}_\phi \frac{\sec\theta_2}{1+\cot^2\eta'''\sin^2\varphi}$$

$$(h)\qquad = \frac{2\sqrt{(z-b)^2}}{z-b}\left[\frac{\sqrt{(f_{20}-\varrho)^2}}{f_{20}-\varrho}\mathrm{H}_{i_2}\eta_2'' + \mathrm{H}_{i_2}\eta_2'''\right]$$

$$+ \frac{4f_{20}(z-b)}{(f_{20}+r)\sqrt{[(\varrho+r)^2+(z-b)^2]}}\,\mathrm{F}^1_{i_2}.$$

The combination of the equations (f), (g), and (h) gives

$$\Omega_2''' = -\tfrac{1}{2}\varrho^2\int_0^{2\circledcirc}\!\!{}_\varphi \log(f_2+z-b) + \tfrac{1}{2}\varrho^2\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}\,\frac{\sqrt{(z-b)^2}}{z-b}\,\mathrm{H}_{i_2}\eta_2'$$

$$+\tfrac{1}{8}\left[r^2-2(z-b)^2\right]\frac{\sqrt{(z-b)^2}}{z-b}\left[\frac{\sqrt{(f_{20}-\varrho)^2}}{f_{20}-\varrho}\,\mathrm{H}_{i_2}\eta_2''+\mathrm{H}_{i_2}\eta_2'''\right]$$
$$-\frac{\tfrac{1}{4}\circledcirc r^2\sqrt{(z-b)^2}}{z-b}\left(1+\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}\right)-\tfrac{3}{2}(z-b)\sqrt{[(\varrho+r)^2+(z-b)^2]}\,\mathrm{E}_{i_2}^1$$
$$+\left[rf_{20}\left(2+\frac{r}{r+f_{20}}\right)-\tfrac{1}{3}f_{20}^2+\tfrac{1}{3}\frac{\varrho^2(r-\varrho)}{\varrho+r}\right]\frac{z-b}{\sqrt{[(\varrho+r)^2+(z-b)^2]}}\,\mathrm{F}_{i_2}^1,$$

and finally

$$\Omega=k\,(\Omega_{22}'''-\Omega_{21}'''-\Omega_{12}'''+\Omega_{11}''').$$

The terms multiplied by $\frac{1}{4}\circledcirc$ are added to free the expression of Ω''' from the discontinuity, with which it would otherwise be affected. Thus when

$$r=\varrho$$

we have
$$\eta_2'=0,\quad \mathrm{H}_{i_2}\eta_2'=\tfrac{1}{2}\circledcirc,$$

and the corresponding term of Ω_2''' would be

$$\frac{r^2}{4}\circledcirc\,\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}\,\frac{\sqrt{(z-b)^2}}{z-b},$$

which suddenly reverses its sign, and is balanced by the term which is added in the corrected form.

Also, when
$$z=b,$$

we have
$$\eta_2''=\eta_2'''=0,\quad \mathrm{H}_{i_2}\eta_2''=\mathrm{H}_{i_2}\eta_2'''=\tfrac{1}{2}\circledcirc,\quad f_{20}=r,$$

and the corresponding terms of Ω_2''' are

$$\tfrac{1}{4}\,r^2\circledcirc\,\frac{\sqrt{(z-b)^2}}{z-b}\left(\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}+1\right),$$

which suddenly reverse their signs, and are balanced by the opposing terms.

It is proper to observe, that in this latter case

$$\eta_2'=\tfrac{1}{2}\circledcirc,\qquad \mathrm{H}_{i_2}\eta_2'=0.$$

When
$$f_{20}=\varrho,$$

we have
$$\eta_2''=\tfrac{1}{2}\circledcirc,\qquad \mathrm{H}_{i_2}\eta_2''=0,$$

so that in these cases the sudden reversal of sign does not affect the continuity of the function.

The function
$$\mathrm{H}_{i_2}\eta_2'''$$

never vanishes, because η_2''' can never become a right angle.

9. The first term of Ω_2''' is incapable of integration, but it may easily be made to assume another form, which will be preferable for computation by means of quadratures. For this purpose, denote it by the letter L, so that

$$\mathrm{L}_2=-\tfrac{1}{2}\varrho^2\int_0^{2\circledcirc}{}_{\phi}\log(f_2+z-b).$$

Its derivative with reference to z is

$$\mathrm{D}_2\,\mathrm{L}_2 = -\tfrac{1}{2}\,\varrho^2 \int_0^{2\odot} \frac{1}{f_2} = -\frac{2\,\varrho^2}{\sqrt{[(\varrho+r)^2+(z-b)^2]}}\,\mathrm{F}^1_{i_2},$$

$$\mathrm{L}_2 = -\int_z \frac{2\,\varrho^2}{\sqrt{[(\varrho+r)^2+(z-b)^2]}}\,\mathrm{F}^1_{i_2}.$$

10. When the attracted point is near either of the curved edges of the ring, the value of Ω''' admits of peculiar transformations and reductions. Thus let the approximated edge be that for which

$$z = b, \qquad \varrho = a_2,$$

and put

$l_2 =$ the distance of the attracted point from the edge, and let this distance be so small that its cube can be rejected. We have then

$$l_2^2 = (a_2-r)^2+(z-b)^2,$$

$$\sec^2 i_{22} = \frac{4\,a_2 r + l_2^2}{l_2^2} = \frac{4\,a_2 r}{l_2^2}\left(1+\frac{l_2^2}{4\,r^2}\right) = \frac{4\,r^2}{l_2^2}\left(1+\frac{a_2-r}{r}+\frac{l_2^2}{4\,r^2}\right),$$

$$\sec i_{22} = \frac{2\,r}{l_2}\left(1+\frac{a_2-r}{2\,r}+\frac{l_2^2-(a_2-r)^2}{8\,r^2}\right) = \frac{2\,r}{l_2}\left(1+\frac{a_2-r}{2\,r}+\frac{(z-b)^2}{8\,r^2}\right),$$

$$\cos^2 i_{22} = \frac{l_2^2}{4\,r^2}\left(1-\frac{a_2-r}{r}-\frac{(z-b)^2-3\,(a_2-r)^2}{4\,r^2}\right),$$

$$\cos i_{22} = \frac{l_2}{2\,r}\left(1-\frac{a_2-r}{2\,r}-\frac{l_2^2-3\,(a_2-r)^2}{8\,r^2}\right),$$

$$\sin^2 \eta'_{22} = \frac{(a_2-r)^2}{l_2^2}, \qquad \cos^2 \eta'_{22} = \frac{(z-b)^2}{l_2^2},$$

$$\sin \eta'_{22} = \frac{\sqrt{(a_2-r)^2}}{l_2}, \qquad \cos \eta'_{22} = \frac{\sqrt{(z-b)^2}}{l_2},$$

$$\sin 2\,\eta'_{22} = \frac{2\sqrt{(a_2-r)^2}\sqrt{(z-b)^2}}{l_2^2},$$

$$\sin \eta''_{22}\cos i_{22} = \sin \eta'''_{22} = \frac{\sqrt{(z-b)^2}}{2\,r} = \eta'''_{22},$$

$$\sin^2 \eta''_{22} = \frac{(z-b)^2}{l_2^2}\left(1+\frac{a_2-r}{r}\right),$$

$$\cos^2 \eta''_{22} = \frac{(a_2-r)^2}{l_2^2}\left(1+\frac{(z-b)^2}{r\,(a_2-r)}\right),$$

$$\sin \eta''_{22} = \frac{\sqrt{(z-b)^2}}{l_2}\left(1+\frac{a_2-r}{2\,r}\right),$$

$$\cos \eta''_{22} = \frac{\sqrt{(a_2-r)^2}}{l_2}\left(1-\frac{(z-b)^2}{2\,r\,(a_2-r)}\right),$$

$$\sin 2\,\eta''_{12} = \frac{2\sqrt{(a_2-r)^2}\sqrt{(z-b)^2}}{l_2^2}\left(1+\frac{a_2-r}{2\,r}-\frac{(z-b)^2}{2\,r\,(a_2-r)}\right)$$

$$= \sin 2\,\eta'_{22}\left(1+\frac{a_2-r}{2\,r}-\frac{(z-b)^2}{2\,r\,(a_2-r)}\right),$$

$$\tfrac{1}{2}\circledcirc - \eta''_{22} = \eta'_{22} - \frac{(a_2 - r)\sqrt{(z-b)^2}}{2r\sqrt{(a_2-r)^2}},$$

$$F^1_{i_{22}} = (1 + \tfrac{1}{4}\cos^2 i_{22}) \log (4 \sec i_{22}) - \tfrac{1}{4}\cos^2 i_{22},$$

$$E^1_{i_{22}} = 1 + \tfrac{1}{4}\cos^2 i_{22} \log (4 \sec i_{22}) - \tfrac{1}{4}\cos^2 i_{22},$$

$$F_{\infty i_{22}}\, \eta'_{22} = \eta'_{22}(1 + \tfrac{1}{4}\cos^2 i_{22}) - \tfrac{1}{8}\sin 2\,\eta'_{22}\cos^2 i_{22},$$

$$F_{\infty i_{22}}\, \eta''_{22} = \eta''_{22}(1 + \tfrac{1}{4}\cos^2 i_{22}) - \tfrac{1}{8}\sin 2\,\eta''_{22}\cos^2 i_{22},$$

$$E_{\infty i_{22}}\, \eta'_{22} = \eta'_{22}(1 - \tfrac{1}{4}\cos^2 i_{22}) + \tfrac{1}{8}\sin 2\,\eta'_{22}\cos^2 i_{22},$$

$$E_{\infty i_{22}}\, \eta''_{22} = \eta''_{22}(1 - \tfrac{1}{4}\cos^2 i_{22}) + \tfrac{1}{8}\sin 2\,\eta''_{22}\cos^2 i_{22},$$

$$F_{\infty i_{22}}\, \eta'''_{22} = E_{\infty i_{22}}\, \eta'''_{22} = \eta'''_{22},$$

$$\begin{aligned} H_{i_{22}}\, \eta'_{22} &= (F_{\infty i_{22}}\,\eta'_{22} - E_{\infty i_{22}}\,\eta'_{22})\, F^1_{i_{22}} - F_{\infty i_{22}}\,\eta'_{22}\, E^1_{i_{22}} + \tfrac{1}{2}\circledcirc \\ &= \tfrac{1}{2}\circledcirc - \eta'_{22}(1 + \tfrac{1}{4}\cos^2 i_{22}) + \tfrac{1}{8}\sin 2\,\eta'_{22}\cos^2 i_{22} - \tfrac{1}{4}\cos^2 i_{22}\sin 2\,\eta'_{22}\log(4\sec i_{22}), \end{aligned}$$

$$H_{i_{22}}\, \eta''_{22} = \tfrac{1}{2}\circledcirc - \eta''_{22}(1 + \tfrac{1}{4}\cos^2 i_{22}) + \tfrac{1}{8}\sin 2\,\eta''_{22}\cos^2 i_{22} - \tfrac{1}{4}\cos^2 i_{22}\sin 2\,\eta''_{22}\log(4\sec i_{22}),$$

$$H_{i_{22}}\, \eta'''_{22} = \tfrac{1}{2}\circledcirc - \eta'''_{22},$$

$$\begin{aligned} L_2 &= -\int_z \frac{2a_2^2}{a_2+r}\log(4\sec i_{22}) \\ &= -\frac{2a_2^2(z-b)}{a_2+r}\log(4\sec i_{22}) - \int_z \frac{2a_2^2(z-b)^2}{(a_2+r)\,l_2^2} \\ &= -\frac{2a_2^2(z-b)}{a_2+r}\log(4\sec i_{22}) - \frac{2a_2^2(z-b)}{a_2+r} + \frac{2a_2^2}{a_2+r}\frac{\sqrt{(a_2-r)^2}}{\sqrt{(z-b)^2}}(\tfrac{1}{2}\circledcirc - \eta'_2) \\ &= -(z-b)\,r\left(1 + \frac{3(a_2-r)}{2r}\right)\log(4\sec i_{22}) - r(z-b) + \frac{r\sqrt{(a_2-r)^2}}{\sqrt{(z-b)^2}}(\tfrac{1}{2}\circledcirc - \eta'_2). \end{aligned}$$

These quantities, substituted in the value of Ω''', reduce it to

$$\begin{aligned} \Omega'''_{22} = {} & 2(r-a_2)(z-b)\log(4\sec i_{22}) + 3(a_2-r)(z-b) \\ & - (z-b)^2 \tan^{[-]}\frac{a_2-r}{z-b} - (a_2-r)^2\tan^{[-]}\frac{z-b}{a_2-r}. \end{aligned}$$

11. When the cube of b can be rejected, the integral of the value of Ω'' in § 6 gives by the formulæ of § 8,

$$\begin{aligned} \Omega'''_2 = -\Omega'''_1 &= \int_\phi^{2\circledcirc}\!\!{}_0\,(bf_0) + \int_\phi^{2\circledcirc}\!\!{}_0\,[b\,r\cos\varphi\log(f_0 + \varrho - r\cos\varphi)] \\ &= b\int_0^{2\circledcirc}\!\!{}_\varphi \frac{\varrho^2 - \varrho r\cos\varphi}{f_0} + b z^2 \int_0^{2\circledcirc}\!\!{}_\phi \frac{r^2 + z^2 - \varrho r\cos\varphi}{(z^2 + r^2\sin^2\varphi) f_0} \\ &= 2b\sqrt{z^2}\left(\frac{\sqrt{(f_{00}-\varrho)^2}}{f_{00}-\varrho}\, H_{i_0}\,\eta''_0 + H_{i_0}\,\eta'''_0\right) \\ &\quad + 2b\sqrt{[(\varrho+r)^2+z^2]}\, E^1_{i_0} + \frac{2b(\varrho^2+z^2-r^2)}{\sqrt{[(\varrho+r)^2+z^2]}}\, F^1_{i_0}. \end{aligned}$$

12. When the second dimensions of z and b can be rejected, the preceding formula becomes

$$\Omega_2''' = -\Omega_1''' = 2\,b\,(\varrho + r)\,\mathrm{E}^1_{i_\infty} + 2\,b\,(\varrho - r)\;\mathrm{F}^1_{i_\infty}.$$

13. When the attracted point is so near the axis that the square of r can be rejected, the integral of the formula of § 7 gives

$$\Omega_2''' = -2\,\odot\,\varrho^2 \log\,(f_2^{[0]} + z - b) - 2\,\odot\,(z-b) f_2^{[0]}.$$

14. The attraction of the ring in the direction of the radius r, and toward the axis, is

$$k\,\mathrm{R} = -\,\mathrm{D}_r\,\Omega = k \int_\sigma \frac{r - \varrho\cos\varphi}{f_3}.$$

15. The integration, indicated in the preceding formula, may be first performed with reference to ζ, and the result is

$$\mathrm{D}_\psi\,\mathrm{R} = \mathrm{R}_2' - \mathrm{R}_1',$$

in which

$$\mathrm{R}_2' = -\,\frac{(r - \varrho\cos\varphi)\,(z-b)}{f^2_{0(0)} f_2}.$$

16. The integration with reference to ϱ gives

$$\mathrm{D}_\phi\,\mathrm{R} = \mathrm{R}_{22}'' - \mathrm{R}_{21}'' - \mathrm{R}_{12}'' + \mathrm{R}_{11}'',$$

in which

$$\mathrm{R}_2'' = \int_\varphi (\varrho\,\mathrm{R}_2').$$

The notation and equations of § 5 give

$$\begin{aligned}
r\varrho - \varrho^2\cos\varphi &= -p^2\cos\varphi - p\,r\cos 2\varphi + r^2\cos\varphi\sin^2\varphi \\
&= -f^2_{0(0)}\cos\varphi - p\,r\cos 2\varphi + 2\,r^2\cos\varphi\sin^2\varphi, \\
\mathrm{R}_2'' = (z-b)\int_p \frac{\cos\varphi}{f_2} &+ (z-b)\,r\cos 2\varphi \int_p \frac{p}{f^2_{0(0)} f_2} \\
&- 2\,(z-b)\,r^2\cos\varphi\sin^2\varphi \int_p \frac{1}{f^2_{0(0)} f_2} \\
&= (z-b)\cos\varphi\log\,(f_2 + \varrho - r\cos\varphi) - r\cos 2\varphi\log\,(f_2 + z - b) \\
&- r\sin 2\varphi\,\tan^{[-]}\frac{p\,(z-b)}{r\sin\varphi f_2}.
\end{aligned}$$

17. When the second dimensions of z and b can be rejected because they are small, the value of R_2' can be reduced to

$$\mathrm{R}_2' = \frac{b\,r - b\,\varrho\cos\varphi}{f^3_{0(0)}}.$$

This gives

$$\mathrm{R}_2'' = -\,b\cos\varphi \int_p \frac{1}{f_{0(0)}} - b\,r\cos 2\varphi \int_p \frac{p}{f^3_{0(0)}} + 2\,b\,r^2\cos\varphi\sin^2\varphi \int_p \frac{1}{f^3_{0(0)}}$$

$$= -b\cos\varphi\log(f_{0(0)}+\varrho-r\cos\varphi)-\frac{br-2b\varrho\cos\varphi}{f_{0(0)}}.$$

But this formula may not be used when $\varrho - r$ is also very small.

18. The integration with reference to φ gives

$$R = R_{22}''' - R_{21}''' - R_{12}''' + R_{11}''',$$

in which

$$R_2''' = \int_0^{2\odot}{}_\phi R_2''.$$

The formulæ and notation of § 9 give

$$R_2''' = -\frac{z-b}{r}\int_0^{2\odot}{}_\phi\frac{r^2+(z-b)^2-\varrho r\cos\varphi}{f_2}+\frac{(z-b)^3}{r}\int_0^{2\odot}{}_\phi\frac{r^2+(z-b)^2-\varrho r\cos\varphi}{[r^2+(z-b)^2-r^2\cos^2\varphi]f_2}$$

$$-r(z-b)\int_0^{2\odot}{}_\phi\left[\frac{\cos^2\varphi}{2f_2}+\frac{(\varrho^2+r^2)\cos\varphi}{4\varrho r f_2}+\frac{(\varrho^2-r^2)^2}{8\varrho^2r^2f_2}\right]+\frac{(z-b)(\varrho^2+r^2)(\varrho^2-r^2)^2}{8\varrho^2 r}\int_0^{2\odot}{}_\phi\frac{1}{f_2f_{0(0)}^2}$$

$$-r(z-b)\int_0^{2\odot}{}_\phi\frac{V}{f_2}$$

$$= -\tfrac{1}{4}(z-b)\varrho^2(r^2-\varrho^2)\int_0^{2\odot}{}_\phi\frac{1}{rf_2f_{0(0)}^2}-\tfrac{1}{2}(z-b)r\int_0^{2\odot}{}_\phi\frac{f_{20}^2-\varrho r\cos\varphi}{[r^2\sin^2\varphi+(z-b)^2]f_2}$$

$$-\frac{z-b}{4r}\int_0^{2\odot}{}_\phi\frac{\varrho^2+2\varrho r\cos\varphi}{f_2}$$

$$= -\frac{\varrho^2}{r}\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}\frac{\sqrt{(z-b)^2}}{z-b}H_{i_2}\eta_2'-\frac{r\sqrt{(z-b)^2}}{z-b}\left[\frac{\sqrt{(f_{20}-\varrho)^2}}{f_{20}-\varrho}H_{i_2}\eta_2''+H_{i_2}\eta_2'''\right]$$

$$+\frac{\tfrac{1}{2}\odot r\sqrt{(z-b)^2}}{z-b}\left(1+\frac{\sqrt{(r-\varrho)^2}}{r-\varrho}\right)+\frac{z-b}{r}\sqrt{[(\varrho+r)^2+(z-b)^2]}\,E_{i_2}^1$$

$$-\left[\frac{\varrho^2(3r+\varrho)}{r(r+\varrho)}+\frac{f_{20}(2r^2+rf_{20}+f_{20}^2)}{r(r+f_{20})}\right]\frac{z-b}{\sqrt{[(\varrho+r)^2+(z-b)^2]}}F_{i_2}^1.$$

19. When the point is very near either of the edges of the ring, the forms of reduction of § 10 give

$$R_{22}''' = (b-z)\frac{r+a_2}{r}[\log(4\sec i_{22})-1-\tan\eta_{22}'(\tfrac{1}{2}\odot-\eta_{22}')].$$

20. When the second dimensions of z and b can be neglected, the integral of R_2'' in § 17 gives

$$\int_0^{2\odot}{}_\phi[b\cos\varphi\log(f_{0(0)}+\varrho-r\cos\varphi)] = -\int_0^{2\odot}{}_\phi\frac{b\sin\varphi\,(D_\phi f_{0(0)}+r\sin\varphi)}{f_{0(0)}+\varrho-r\cos\varphi}$$

$$= -\int_0^{2\odot}{}_\phi\frac{br\sin^2\varphi\,(f_{0(0)}+\varrho)}{f_{0(0)}(f_{0(0)}+\varrho-r\cos\varphi)}$$

$$= -\int_{\phi\,0}^{2\odot} \frac{b\, r \sin^2\varphi\,(f_{0(\omega)}+\varrho)\,(f_{0(\omega)}-\varrho+r\cos\varphi)}{f_{0(\omega)}\, r^2 \sin^2\varphi}$$

$$= -\int_{\phi\,0}^{2\odot} \frac{b\,(f^2_{0(\omega)}-\varrho^2+\varrho\, r\cos\varphi)}{r\, f_{0(\omega)}}$$

$$= -\int_{\phi\,0}^{2\odot} \frac{\frac{1}{2} b\,(f^2_{0(\omega)}-\varrho^2+r^2)}{r\, f_{0(\omega)}},$$

$$R_2''' = -b\int_{\phi\,0}^{2\odot} \frac{r-2\varrho\cos\varphi}{f_{0(\omega)}} - \int_{\phi\,0}^{2\odot} b\cos\varphi\log(f_{0(\omega)}+\varrho-r\cos\varphi)$$

$$= -b\int_{\phi\,0}^{2\odot} \frac{\frac{1}{2}f^2_{0(\omega)}-\frac{1}{2}\varrho^2-\frac{1}{2}r^2}{r\, f_{0(\omega)}} = -\frac{2\,b\,(\varrho+r)}{r}\,E^1_{i_0(o)} + \frac{2\,b\,(\varrho^2+r^2)}{(\varrho+r)\,r}\,F^1_{i_0(o)}.$$

21. When the attracted point is so near the axis that the square of r can be rejected, the first term of R_2'' in § 16 is the only one which must be retained, and in this case we have

$$\log(f_2+\varrho-r\cos\varphi) = \log(f_2^{[0]}+\varrho) - \frac{r\cos\varphi}{f_2^{[0]}},$$

$$R_2''' = -\frac{\odot\, r\,(z-b)}{f_2^{[0]}}.$$

22. The attraction of the ring, perpendicular to its plane, and toward the plane, is

$$Z = -D_z\,\Omega = k\int_\sigma \frac{z-\zeta}{f^3}.$$

23. The integral of the value of $D_\sigma Z$ taken with reference to ζ, gives

$$D_\psi Z = k\,(Z_2'-Z_1'),$$

in which

$$Z_2' = \frac{1}{f_2}.$$

24. The integration of $\varrho\, Z_2'$ with reference to ϱ gives

$$D_\phi Z = k\,(Z_{22}''-Z_{21}''-Z_{12}''+Z_{11}''),$$

in which

$$Z_2'' = \int_\rho \frac{\varrho}{f_2} = f_2 + r\cos\varphi\int_o \frac{1}{f_2}$$

$$= f_2 + r\cos\varphi\log(f_2+\varrho-r\cos\varphi).$$

25. The final integration with reference to φ gives, by means of the formulæ of § 9,

$$Z = k\,(Z_{22}'''-Z_{21}'''-Z_{12}'''+Z_{11}'''),$$

in which

$$Z_2''' = (z-b)^2 \int_0^{2\odot}{}_\phi \frac{r^2 + (z-b)^2 - \varrho r \cos\varphi}{[r^2 \sin^2\varphi + (z-b)^2] f_2} + \tfrac{1}{2} \int_0^{2\odot}{}_\phi f_2 + \tfrac{1}{2} (\varrho^2 - f_{20}^2) \int_0^{2\odot}{}_\phi \frac{1}{f_2}$$

$$= 2\sqrt{(z-b)^2} \left[\frac{\sqrt{(f_{20}-\varrho)^2}}{f_{20}-\varrho} (\mathrm{H}_{i_2} \eta_2'' - \tfrac{1}{2}\odot) + \mathrm{H}_{i_2} \eta_2''' - \tfrac{1}{2}\odot \right]$$

$$+ \frac{2 f_{20}^2 - 4 r f_{20} - 2\varrho^2}{\sqrt{[(\varrho+r)^2 + (z-b)^2]}} \mathrm{F}^1_{i_2} + 2\sqrt{[(\varrho+r)^2 + (z-b)^2]}\, \mathrm{E}^1_{i_2}.$$

26. When the ring is thin and the attracted point near its plane, so that the third dimensions of z and b can be neglected, the value of Z_2'' can be reduced by the formulæ

$$f_2 = f_{0(0)} + \frac{(z-b)^2}{2 f_{0(0)}},$$

$$\log(f_2 + \varrho - r\cos\varphi) = \log(f_{0(0)} + \varrho - r\cos\varphi) + \frac{(z-b)^2}{2 f_{0(0)} (f_{0(0)} + \varrho - r\cos\varphi)}.$$

The substitution of these values in Z_2'' and the neglect of the terms which are common to Z_{22}'' and Z_{21}'', as well as to Z_{12}'' and Z_{11}'', gives

$$Z_2'' = \frac{-zb}{f_{0(0)}} - \frac{z b r \cos\varphi}{f_{0(0)} (f_{0(0)} + \varrho - r\cos\varphi)}$$

$$= \frac{-zb}{f_{0(0)}} - \frac{z b \cos\varphi (f_{0(0)} - \varrho + r\cos\varphi)}{r f_{0(0)} \sin^2\varphi}$$

$$= \frac{z b (\varrho \cos\varphi - r)}{r f_{0(0)} \sin^2\varphi} - \frac{z b \cos\varphi}{r \sin^2\varphi}$$

$$= \frac{zb}{4 r f_{0(0)}} \left(\frac{\varrho - r}{\sin^2 \frac{1}{2}\varphi} - \frac{\varrho + r}{\cos^2 \frac{1}{2}\varphi} \right) - \frac{z b \cos\varphi}{r \sin^2\varphi}.$$

The integral of this expression becomes, after omitting the last term, for reasons already given,

$$Z_2''' = \frac{zb}{r(\varrho + r)} \int_0^{\frac{1}{2}\odot}{}_\phi \left[\frac{1}{\sqrt{(1 - \sin^2 i \sin^2\varphi)}} \left(\frac{\varrho - r}{\cos^2\varphi} - \frac{\varrho + r}{\sin^2\varphi} \right) \right]$$

$$= -\frac{2bz}{\varrho + r} \mathrm{F}^1_{i_2} - \frac{2bz}{\varrho - r} \mathrm{E}^1_{i_2}.$$

27. The mass of the ring is

$$\mathrm{M} = 2\odot b k (a_2^2 - a_1^2),$$

which gives

$$k = \frac{\mathrm{M}}{2\odot b (a_2^2 - a_1^2)}$$

28. When the ring is very thin and narrow, the integrations can be performed at once with reference to φ, and we find, by using a for the mean radius of the ring,

$$\Omega = 2\,b\,k\,a\,(a_2 - a_1)\int_0^{2\circledcirc}{}_{\phi}\,\frac{1}{f}$$

$$= \frac{M}{2\circledcirc}\int_0^{2\circledcirc}{}_{\phi}\,\frac{1}{f} = \frac{2\,M}{\circledcirc\sqrt{[(a+r)^2+z^2]}}\,F_i^1,$$

$$R = \frac{M}{2\circledcirc}\int_0^{2\circledcirc}{}_{\phi}\,\frac{r - a\cos\varphi}{f^3}$$

$$= \frac{M}{r\circledcirc\sqrt{[(a+r)^2+z^2]}}\left(F_i^1 + \frac{r^2-a^2-z^2}{(r-a)^2+z^2}\,E_i^1\right),$$

$$Z = \frac{M}{2\circledcirc}\int_0^{2\circledcirc}{}_{\phi}\,\frac{z}{f^3}$$

$$= \frac{2\,M\,z}{\circledcirc[(a-r)^2+z^2]\sqrt{[(a+r)^2+z^2]}}\,E_i^1.$$

These formulæ give

$$R = \frac{\Omega}{2\,r} + \frac{r^2-a^2-z^2}{2\,r\,z}\,Z.$$

29. If, in the general case, a plane is drawn through the attracted point perpendicular to the axis of the cylinder, and if, in this plane, two circles are taken, with their common centre in the axis, and with radii r' and r'', connected by the equation,

$$r'\,r'' = \varrho^2 + (z-\zeta)^2 = q^2,$$

in which q is the distance of the common centre from the attracting particle (ϱ, ζ), every point in either circumference has the same value of i, which may be determined by the equation

$$\cos^2 i = \frac{r'+r''-2\varrho}{r'+r''+2\varrho}.$$

The two circles may be called *complementary*, and are derived from each other by a simple and obvious geometrical construction. It is apparent, indeed, that they are both tangent to a spherical surface, which passes through the particle (ϱ, ζ), and is tangent to the cone having for its axis the axis of the cylinder, for its vertex the common centre of the circles, and which passes through the point (ϱ, ζ).

If the values of § 29 are, then, denoted as functions of r' and r'', they give

$$\Omega(r'') = \sqrt{\frac{r'}{r''}}\,\Omega(r') = \frac{q}{r''}\,\Omega(r') = \frac{r'}{q}\,\Omega(r'),$$

$$Z(r'') = \left(\frac{r'}{r''}\right)^{\frac{3}{2}} Z(r') = \frac{q^3}{r''^3}\,Z(r') = \frac{r'^3}{q^3}\,Z(r'),$$

$$R(r'') = \frac{q}{r''^2}\,\Omega(r') - \frac{q^2}{r''^2}\,R(r') = \frac{q^2}{r''^2}\left[R(r') - \frac{r'-r''}{z}\,Z(r')\right].$$

When the quantity

$$r'^2 + z^2$$

is so large that a^2 can be rejected in comparison with it, the values of the functions of § 28 become

$$\Omega(r') = \frac{M}{\sqrt{(r'^2+z^2)}},$$

$$R(r') = \frac{M r'}{(r'^2+z^2)^{\frac{3}{2}}},$$

$$Z(r') = \frac{M z}{(r'^2+z^2)^{\frac{3}{2}}} = \frac{z}{r'} R(r');$$

whence, the corresponding values for r'' are

$$\Omega(r'') = \frac{M}{q\sqrt{\left(1+\frac{z^2}{r'^2}\right)}},$$

$$R(r'') = \frac{M r''}{\left[q\sqrt{\left(1+\frac{z^2}{r'^2}\right)}\right]^3},$$

$$Z(r'') = \frac{M z}{\left[q\sqrt{\left(1+\frac{z^2}{r'^2}\right)}\right]^3} = \frac{z}{r''} R(r'').$$

When z is so small that its square can be rejected in comparison with r', these values become

$$\Omega(r') = \frac{M}{r'}, \qquad \Omega(r'') = \frac{M}{\sqrt{(r' r'')}},$$

$$R(r') = \frac{M}{r'^2}, \qquad R(r'') = -\frac{M}{\sqrt{(r'^3 r'')}},$$

$$Z(r') = \frac{M^2}{r'^3}, \qquad Z(r'') = \frac{M^2}{\sqrt{(r'^3 r''^3)}}.$$

30. When the ring is very thin, and the attracted point is so near its plane that the second dimensions of z and b can be neglected; and when the ring extends inward to the very axis itself, its outer radius may be denoted by a, and the points r' and r'' may be connected by the equation

$$r' r'' = a^2,$$

and we may suppose

$$r' > a, \qquad r'' < a,$$

which gives

$$\cos i = \frac{r'-a}{r'+a} = \frac{a-r''}{a+r''},$$

$$r' = a \cot^2 \tfrac{1}{2} i,$$

$$r'' = a \tan^2 \tfrac{1}{2} i,$$

$$M = 2 \circledcirc k b a^2,$$
$$k = \frac{M}{2 \circledcirc b a^2},$$

and from the formulæ of §§ 12, 20, and 26,

$$\Omega(r') = \frac{2M}{\circledcirc a} \operatorname{cosec}^2 \tfrac{1}{2} i (E_i^1 - \cos i F_i^1),$$

$$\Omega(r'') = \frac{2M}{\circledcirc a} \sec^2 \tfrac{1}{2} i (E_i^1 + \cos i F_i^1),$$

$$R(r') = \frac{2M}{\circledcirc a^2} \sec^2 \tfrac{1}{2} i [(1 - \tfrac{1}{2} \sin^2 i) F_i^1 - E_i^1),$$

$$R(r'') = \frac{2M}{\circledcirc a^2} \operatorname{cosec}^2 \tfrac{1}{2} i [(1 - \tfrac{1}{2} \sin^2 i) F_i^1 - E_i^1]$$

$$= \frac{r'}{a} R(r') = \frac{a}{r''} R(r'),$$

$$Z(r') = \frac{2Mz}{\circledcirc a^3} \sin^2 \tfrac{1}{2} i (\sec i E_i^1 - F_i^1) = \frac{z \sin^4 \frac{1}{2} i}{a^2 \cos^2 i} \Omega(r'),$$

$$Z(r'') = \frac{2M}{a^2} - \frac{2Mz}{\circledcirc a^3} \cos^2 \tfrac{1}{2} i (\sec i E_i^1 + F_i^1) = \frac{2M}{a^2} - \frac{z \cos^4 \frac{1}{2} i}{a^2 \cos^2 i} \Omega(r''),$$

$$a R(r') + \Omega(r'') = \frac{4M}{\circledcirc a^2} \cos^2 \tfrac{1}{2} i - \frac{2M}{a},$$

$$a R(r'') + \Omega(r') = \frac{4 \circledcirc}{\circledcirc a^2} \sin^2 \tfrac{1}{2} i = \frac{a}{r'} [a R(r') + \Omega(r'')],$$

$$\Omega(r'') = \frac{r'}{a} \Omega(r') + \frac{r'}{a} (r' - r'') R(r').$$

If r' is so large that the square of the lineal dimensions of the ring can be rejected, these quantities become

$$\Omega(r') = \frac{M}{r'}, \qquad \Omega(r'') = \frac{2M}{a},$$

$$R(r') = \frac{M}{r'^2}, \qquad R(r'') = \frac{M}{a r'} = \frac{r'' M}{a^2},$$

$$Z(r') = \frac{M^2}{r'^3} \qquad Z(r'') = \frac{2M}{a^2} - \frac{2Mz}{a^3}.$$

The general values of this section can easily be reduced to series. If

$$\overset{b}{\underset{a}{\Pi_i}} \psi i \quad \text{and} \quad \overset{b}{\underset{a}{\Sigma_i}} \psi i$$

denote respectively the continued product of all values of the function ψi from a to b, and the sum of all these values, we find

$$\Omega(r') = \frac{M}{r'} + \frac{2M}{r'} \overset{\infty}{\underset{1}{\Sigma_i}} \left[\overset{i}{\underset{1}{\Pi_i}} \left(\frac{2i-1}{2i}\right)^2 \frac{1}{2i+2} \left(\frac{a}{r'}\right)^{2i} \right],$$

(283)

$$\Omega(r'') = \frac{2M}{a} - \frac{2M}{a}\sum_1^\infty{}_i\left[\prod_1^i{}_i\left(\frac{2i-1}{2i}\right)^2 \frac{1}{2i-1}\left(\frac{r^4}{a}\right)^{2i}\right],$$

$$R(r') = \frac{M}{r'^2} + \frac{2M}{r'^2}\sum_1^\infty{}_i\left[\prod_1^i{}_i\left(\frac{2i-1}{2i}\right)^2 \frac{2i+1}{2i+2}\left(\frac{a}{r'}\right)^{2i}\right],$$

$$R(r'') = \frac{Mr''}{a^2} + \frac{2Mr''}{a^2}\sum_1^\infty{}_i\left[\prod_1^i{}_i\left(\frac{2i-1}{2i}\right)^2 \frac{2i+1}{2i+2}\left(\frac{r''}{a}\right)^{2i}\right],$$

$$Z(r') = \frac{z}{r'^2 - a^2}\,\Omega(r'),$$

$$Z(r'') = \frac{2M}{a^2} - \frac{z}{a^2 - r''^2}\,\Omega(r'').$$

The values of Z in these equations are only applicable when

$$z > b;$$

but when

$$z < b,$$

they must be multiplied by $\frac{z}{b}$.

31. The following tables contain the value of the potential and attractions of thin rings computed by the formulæ of §§ 27 and 30. In the first table, the ring is narrow as well as thin, and in the second table, it is continuous to the centre of the ring. The values of r' and r'' are the same in both tables for the same value of i.

Table of the potential and attractions of an infinitely thin and narrow ring upon points in its plane.

i	r'	r''	$\frac{r'\,\Omega(r')}{M} = a\frac{\Omega(r'')}{M}$	$\frac{r'^2 R(r')}{M}$	$-\frac{ar'' R(r'')}{M}$	$\frac{r'^3 Z(r')}{Mz} = \frac{a^3 Z(r'')}{Mz}$
0°	∞	0.	1.000000	1.000000	0.	1.000000
5	524.5825	0.001906	1.000001	1.000003	0.000002	1.000008
10	130.64601	0.007654	1.000015	1.000044	0.000030	1.000133
15	57.69548	0.017332	1.000075	1.000226	0.000151	1.000678
20	32.16343	0.031091	1.000242	1.000726	0.000484	1.002178
25	20.34650	0.049149	1.000605	1.001816	0.001210	1.005455
30	13.92820	0.071797	1.001292	1.003884	0.002592	1.011692
35	10.05901	0.099413	1.002484	1.007481	0.004997	1.022584
40	7.54863	0.132474	1.004431	1.013402	0.008952	1.040596
45	5.82843	0.171573	1.007667	1.022796	0.015130	1.069407
50	4.59891	0.217443	1.012146	1.037109	0.024963	1.114780
55	3.69017	0.270990	1.019159	1.059161	0.040002	1.186278
60	3.00000	0.333333	1.029660	1.093066	0.063406	1.301032
65	2.46391	0.405859	1.045496	1.146265	0.100769	1.492956
70	2.03961	0.490291	1.069889	1.233363	0.163474	1.838875
75	1.69840	0.588791	1.109147	1.387800	0.278653	2.550722
80	1.42028	0.704088	1.178052	1.707872	0.529820	4.437579
81	1.37089	0.729454	1.198292	1.815448	0.617156	5.199017
82	1.32335	0.755660	1.221947	1.949978	0.728030	6.242754
83	1.27752	0.782739	1.250000	2.122787	0.827787	7.734104
84	1.23346	0.810727	1.283927	2.35269	1.06876	9.98322
85	1.19095	0.839663	1.325983	2.67340	1.34741	13.6314
86	1.14997	0.869585	1.380021	3.15182	1.77180	20.1935
87	1.11046	0.900534	1.453314	3.94369	2.49037	34.0356
88	1.07232	0.932555	1.562340	5.52133	3.95899	72.7347
89	1.03553	0.965694	1.760174	10.1627	8.4025	275.347
90	1.00000	1.000000	∞	∞	∞	∞

Table of the potential and attractions of a thin ring, continuous to its centre, upon points in its plane.

i	$\frac{a\,\Omega\,(r'')}{2\,M}$	$\frac{r'\,\Omega\,(r')}{M}$	$\frac{r'^2\,R\,(r')}{M} = \frac{a^2\,R\,(r'')}{r''\,M}$	$\frac{r'^2\,Z\,(r')}{M\,z}$	$\frac{2a - a^2\,Z\,(r'')}{2\,M\,z}$
0°	1.0000000	1.0000000	1.000000	1.00000	1.00000
5	0.9999988	1.0000007	1.000002	1.00000	1.00000
10	0.9999858	1.0000073	1.000022	1.00001	1.00000
15	0.9999246	1.0000375	1.000113	1.00034	1.00023
20	0.9997578	1.0001209	1.000363	1.00109	1.00073
25	0.9993957	1.0003022	1.000907	1.00273	1.00182
30	0.9987100	1.0006456	1.001939	1.00583	1.00388
35	0.9975244	1.0012400	1.003729	1.01123	1.00748
40	0.9955980	1.0022082	1.006654	1.02011	1.01333
45	0.9925998	1.0037209	1.011247	1.03416	1.02271
50	0.9880727	1.0060176	1.018273	1.05594	1.03711
55	0.9813807	1.0094381	1.028873	1.08944	1.05916
60	0.9716148	1.0145048	1.044815	1.14132	1.09306
65	0.9574514	1.0219778	1.078666	1.22352	1.14626
70	0.9368815	1.0331557	1.106622	1.36010	1.23336
75	0.9066496	1.0504120	1.167882	1.60779	1.38775
80	0.8612096	1.0778420	1.278265	2.13747	1.70787
81	0.8494422	1.0853725	1.311186	2.31968	1.81544
82	0.8364986	1.0938600	1.350033	2.54992	1.94989
83	0.8222016	1.1035076	1.396511	2.84908	2.12280
84	0.8063222	1.1145718	1.453285	3.25213	2.35721
85	0.7885587	1.1279491	1.525237	3.82399	2.67338
86	0.7684940	1.1425976	1.617462	4.68618	3.15185
87	0.7455082	1.1610259	1.745602	5.86530	3.94367
88	0.7185595	1.1841932	1.940486	9.08531	5.51290
89	0.6855088	1.2155897	2.304686	18.88092	10.16588
90	0.6366197	1.2732394	∞	∞	∞

ON THE DISTRIBUTION OF CERTAIN DISEASES IN REFERENCE TO HYGIENIC CHOICE OF LOCATION FOR THE CURE OF INVALID SOLDIERS.

THE disposition to be made of maimed and infirm soldiers after the war is becoming a problem of great national moment. A most able physician and zealous sanitarian* has already entered upon its solution, and after having collected materials from all important sources, has already arrived at conclusions which highly commend themselves. His leading idea is, that each one should enjoy a *home* connected with some *occupation* as a means of support; and that pensioners should not be collected into large communities by themselves, as at Greenwich, Chelsea, or the Hotel of the Invalids. With this view he has classified the various employments, especially the petty offices in the gift of the general government and of corporate bodies, which men deprived of a leg or an arm or otherwise maimed may be able to fill, or so to combine these places that one man may supply what the other lacks, and thus mutually assist each other. Such as may be broken down by camp diseases and incapable of any active labor, he proposes to classify also, and to have sanitary institutions established in various regions, the localities for them being selected with reference to the particular infirmity to be treated. It is with a view of contributing something towards this latter branch of the project, and to show how reasonable it is, that this paper is undertaken.

It has been vaguely known that certain diseases predominate in certain regions, while they are comparatively unknown elsewhere. But the actual facts in the case, so far as this country is concerned, have not, I think, been tabulated. I will confine myself for illustration to the two great classes of diseases which are most likely to be the causes of invalidism, viz: consumption and miasmatic diseases or fevers.

It has been a disputed point whether the North is really and notably more subject to consumption than the South. Judging from statistical tables derived from the principal southern cities, the only sources we have had, until recently, for affording a conclusion, the proportion of deaths there has not been much less than in the northern cities. The southerner has told us, however, that the deaths in their cities are those of northern invalids who come south to die; and that their own population is not much affected by the disease.

In the census of the United States for 1860, the diseases causing death that year were given. This census was taken simultaneously everywhere, under the same auspices, and according to the same formula. It covered a territory embracing nearly every variety of climate and surface, surpassing in these respects any registration ever before attempted;

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* Dr. John Ordroneaux, of New York.

greater indeed than the whole extent of civilized Europe, and better adapted, therefore, to afford conclusions as to the effect of climate on the distribution of diseases, than all the registrations of Europe, taken, as they have been, at many different times and under many different auspices. I have made an analysis of this census, taking each State by itself, and ascertaining for each the percentage of deaths from consumption compared with deaths from all other diseases; and also the number of persons living to one person dying of consumption.

The result was both startling and decisive, and is exhibited in the following table. In this table is incorporated also an analysis of the less accurate and less extensive census of 1850, which shows, in the main, a similar result, and strongly confirms the general conclusions.

STATES.	CONSUMPTION.						Per cent. of fever to all deaths, 1860.	Sums of per cent. for fever and consumption.
	Per cent. of all deaths, 1860.	Per cent. of all deaths, 1850.	Mean of percentage.	Number living to one death, 1860.	Number living to one death, 1850.	Mean of number living.		
Maine	29.888	22.44	26.164	290	343	316	8.500	34.664
New Hampshire	26.971	21.81	23.880	280	344	312	7.885	31.765
Rhode Island	24.220	20.96	22.590	308	214	261	3.460	26.050
Vermont	24.043	24.02	24.030	404	418	411	7.809	31.839
Massachusetts	23.758	17.66	20.709	254	290	272	4.732	25.441
Connecticut	21.611	16.76	19.185	363	382	372	5.807	24.992
District of Columbia	20.565	15.96	18.262	294	383	338	4.838	23.100
New Jersey	18.794	12.61	15.700	498	535	516	4.371	20.071
New York	18.265	14.67	16.467	473	463	468	3.701	20.168
Pennsylvania	17.375	12.33	14.852	579	656	617	6.681	21.533
Michigan	17.058	14.55	15.608	631	605	618	9.141	24.749
Maryland	16.916	11.45	14.183	574	529	551	5.539	19.722
Delaware	16.905	9.76	13.332	558	776	667	6.475	19.807
California	16.176	....	....	725	....	....	9.281	....
Minnesota	14.965	....	....	1,140	....	....	8.226	....
Ohio	14.741	8.84	11.790	669	774	721	6.959	18.749
Wisconsin	13.519	9.99	11.254	852	1,742	1,297	7.206	18.460
Indiana	11.669	8.42	10.044	792	924	858	12.079	22.123
Kentucky	11.131	8.57	9.850	663	755	709	10.665	20.515
Iowa	10.773	7.78	9.275	902	1,209	1,055	12.646	21.921
Illinois	10.545	7.37	8.957	879	983	931	12.602	21.559
Tennessee	10.036	7.40	8.718	771	1,141	956	12.162	20.880
Virginia	9.942	8.48	9.210	757	867	812	6.881	16.091
Oregon	9.170	....	....	2,498	....	....	7.423	....
Kansas	7.839	....	....	1,002	....	....	7.839	....
Missouri	7.742	5.27	6.505	908	1,052	980	14.050	20.555
Louisiana	7.244	5.36	6.300	839	838	838	11.893	18.193
North Carolina	6.394	5.52	5.955	1,304	1,546	1,425	12.626	18.581
Florida	5.950	4.91	5.430	1,556	2,033	1,794	14.417	19.847
Alabama	5.027	3.98	4.503	1,618	2,133	1,874	12.366	16.869
Mississippi	4.853	3.69	4.270	1,428	1,827	1,627	15.002	19.272
Texas	4.833	3.66	4.245	1,439	1,898	1,668	15.491	19.736
South Carolina	4.279	3.32	3.799	1,804	2,504	2,154	12.290	16.089
Georgia	4.156	2.81	3.483	2,153	3,248	2,700	12.311	15.794
Arkansas	3.878	4.34	4.109	1,323	1,590	1,456	17.800	21.909

It will be seen that the greatest mortality was at the extreme north, and diminished southward almost as regularly as the States could be called. Taking the first column as most correct, we see that in Maine nearly thirty per cent. of all deaths were from consumption; while in Georgia and Arkansas only about four per cent. died from that cause; or, at least nine

in the extreme north to one in the extreme south. The same result is arrived at if we compare the number of persons living to one death from consumption. The variations from this direct and uniform decrease are very slight. For instance, in the District of Columbia the proportion was considerably greater than in other places of the same latitude, owing probably to the mixed population, derived as it is from all sections of the land; while in Minnesota and Iowa it is less dominant, owing, as there is reason to believe, to the remarkably equable and dry climate. Again, some allowance must be made for the newly settled territories which are mainly populated by young and vigorous men, with a dearth of females, a class in which the disease would not be expected to prevail.

The general law that liability to consumption in the United States decreases as we pass from north to south must be considered as definitively settled. Whatever the minor errors in diagnosis or in registration may have been, and considering the uniform time and method in which the data were obtained, they would weigh little against the uniform rate and direction of the variation exhibited.

Now in addition to the fact that consumption is so much more fatal at the north than at the south, it is also a fact that the mortality from all diseases is greater at the south than at the north. If we take the three northernmost States, Maine, Vermont, and New Hampshire, the mortality to every one hundred persons is 1.25, or one person to every 81 living; while if we take the southern States, South Carolina, Georgia, and Texas, the mortality is 1.41 to one hundred, or one death to every 71 living. It then becomes a question, what disease, or what class of diseases at the south compensates for the fatality of consumption at the north. The miasmatic diseases, developing fevers of various types, are well known to be very fatal at the south. If we tabulate the fevers in the same way as we have done consumption, (and this is also exhibited in the table,) we find the order of the States nearly reversed, the proportion of deaths being very small in the northern and large in the southern States. Indeed, if we add together the percentage of deaths from consumption and fever in each of the States, their sum is nearly equal for all the States; and the extremes of variation for the States, instead of one to ten, become as one to two.

It is thus evident that there are regions more favored than others in respect to exemption from certain diseases, and consequently more favorable to recovery from those diseases; and that this preference is much more strong than has been supposed—certainly more strong than has ever before been proved. What is true in regard to the two diseases in question is true to a certain extent of other diseases.

The idea, therefore, of establishing sanitaria for different diseases in parts of the country best suited to their cure, sending patients north or south, east or west, to the sea-shore or upon the mountains, as the case may be, is a most important one. Infirmaries established with this idea in view must be attended with a far greater degree of success than can be obtained from the old system of mingling together invalids laboring under all sorts of infirmities, as has been the case heretofore in all countries.

An English writer has maintained that the idea that consumption and ague are antago-

nistic, and that it is more rife and more rapidly fatal in northern than in southern latitudes, or that its prevalence has any connexion with a cold, wet and variable climate, are popular errors, at variance with the facts of common experience as well as with the results of statistical research. Certainly, the figures of our table, more reliable under the circumstances than any European tables covering a territory of equal extent, are opposed to such views, and strongly confirm the popular notions, so far at least as the United States are concerned.

ON SHOOTING STARS.

BY H. A. NEWTON.

THE periodical shooting stars, particularly those of August and November, have hitherto very naturally attracted more attention than the sporadic ones, those which are seen on every clear night in the year. Yet these latter are objects of no small interest. There are methods of observing, and of computation, by which much can be learned about them, and observations already made show something of their numbers and of their place in the solar system. I propose to combine these existing materials and see to what they lead us. If it be said that I use rude processes and inexact data, and reject in computing terms of considerable importance, I must plead that it is a step forward to do anything in this direction, and express the hope that better data will soon warrant the use of more refined processes.

It will be necessary to assume some propositions which are probably not strictly true, and others which may not be universally conceded. I shall, however, set forth very distinctly these assumptions that future observation may correct them if erroneous, and verify them if true.

In the *American Journal of Science* for July, 1864, p. 135, I gave a table of the computed altitudes of three hundred and forty-two shooting stars, which are all I have been able to collect from the scientific journals.* The altitude is in each case computed from the parallax shown by observations made at two or more places at some distance from each other. These observations are always subject to large probable errors, and there is often great doubt whether different observers saw the same object. An attempt is made to separate in the table the manifestly unreliable cases from the rest. But the remaining ones individually are not all deserving of confidence. Taken together, however, many of the errors will balance, and the whole may be made the basis of computation as a first approximation.

DISTRIBUTION VERTICALLY OF THE MIDDLE POINTS OF THE LUMINOUS PORTIONS OF THE METEOR-PATHS.

When in the table the altitudes of the beginning and ending of the visible part of a path are given, the half sum is taken as the altitude of the middle point. When only one end is given we might reject it altogether. It seems better, however, to give some weight to such determinations. By adding or substracting one-half the average descent of shooting stars we

* This table, with the accompanying notes, is given in an appendix to this memoir.

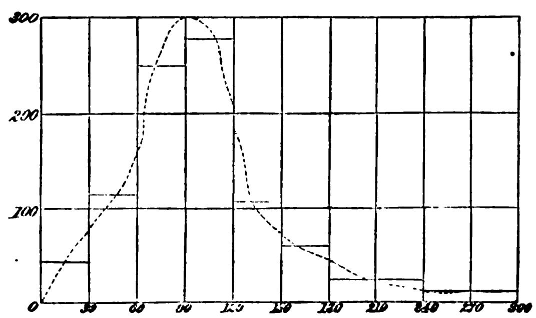
obtain a number which may be used for the altitude of the middle point. This average descent according to the table is about twenty geographic miles. But the average length of track will be found to be between twenty one and thirty-four miles. If the points from which the motion of the meteors is directed are uniformly distributed over the visible hemisphere, then it may be shown that the average descent would be one-half the average length. When, therefore, only the first or last altitude is given in the table, we ought, according to the first result, to take ten miles from the first, or add ten miles to the last altitude, and use the result as the altitude of the middle point. The second result gives a quantity between five and a quarter and eight and a half miles to be added or subtracted. I have used, therefore, eight miles as half the amount of descent.

When one end only is given, the resulting altitude is counted once. When both ends are given it is counted twice. Again, certain sets of altitudes are computed from base lines that were too short or too long, or they are otherwise not deserving of full confidence. Such are the flights observed and computed by BRANDES and BENZENBERG in 1798, 1801, and 1802, a part of those by BRANDES in 1823, those by the younger BRANDES in 1833, those by BOGUSLAUSKI, ERMAN, and LITTROW in 1837 and 1838, by COULVIER-GRAVIER in 1845, and by LE VERRIER in 1856. These are counted once only, while the other sets are counted twice. In the best cases, therefore, the altitudes are counted four times. Proceeding in this manner, and converting miles into kilometres, we have the following numbers:

Altitudes between	0	and	30	kilometres	39
"	30	"	60	"	114
"	60	"	90	"	243
"	90	"	120	"	277
"	120	"	150	"	106
"	150	"	180	"	57
"	180	"	210	"	20
"	210	"	240	"	20
"	240	"	270	"	8
"	270	"	300	"	10
Altitudes over	300 kilometres			- - -	2

These numbers are exhibited graphically in figure 1.

Fig. 1.



The observations made in this country in August and November of last year, and the more reliable series of European observations, lead me to doubt very much the smaller altitudes. Most of them are in fact computed from very short base lines. While there may be some flights which are quite low, I feel safe in disregarding all the cases where the height of the middle point is said to be less than thirty kilometres. On the other hand, there must be a definite upper limit to the appearance of these trains, and the extension of the curve given above to the right of 180 at least, may be referred to errors of observation. The numbers corresponding I shall therefore disregard. In the following computations the rejection of these very high altitudes produces an effect the opposite of that which results from rejecting the very low ones, and the two effects tend to balance each other.

I shall assume that these observed paths are fair examples as to altitude of all visible paths, and hence that the frequency of the middle points at different altitudes above the earth's surface is proportional to, and may be expressed by, these numbers:

From	30	kilometres to	60	by	114
"	60	"	90	"	243
"	90	"	120	"	277
"	120	"	150	"	106
"	150	"	180	"	57

Representing these numbers by ρ, and the average altitude by h_0, we have, approximately,

$$h_0 = \frac{\Sigma \rho h}{\Sigma \rho},$$

where in the finite summation indicated by Σ the successive values of ρ are to be taken, and h is to be successively $\frac{1}{2}(30+60)$, $\frac{1}{2}(60+90)$, &c., or 45, 75, 105, 135, and 165 kilometres. The value of h_0, that is, the average altitude of the middle points of the meteor-paths above the earth's surface, is thus found to be 95.5 kilometres, or 59.4 English miles.

DISTRIBUTION OF THE METEOR-PATHS OVER THE APPARENT HEAVENS IN AZIMUTH.

If the middle points of the apparent paths of all the shooting stars that can be seen at one place during a long time were marked on the visible heavens, we might reasonably suppose these points equably distributed in azimuth. For let O, in figure 2, be the place of an observer, Z his zenith, and let the paths, or their middle points, be distributed through a stratum above him. If then OA and OA[1] make equal angles with OZ, these lines will pass similarly through the stratum, and about as many paths should be seen along one line as along the other.

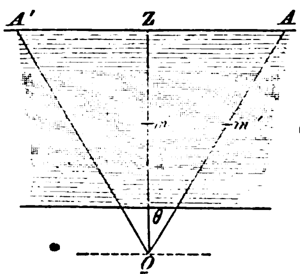


Fig. 2.

This argument implies an equable distribution of the paths horizontally along the stratum, which is not strictly true. For the number of meteors seen at a place increases through the night, and hence there should be east of us more paths than west of us at any time of the night. The difference, however, is quite small. A uniform direction of the paths may also have a little influence, especially by changing the distance at which paths can be seen.

The above conclusion accords with observation. Mr. HERRICK was accustomed to watch in company with others on the anniversaries of the August and November showers, and sometimes on other nights. He classified the paths carefully according to the quarter of the heavens in which they originated, sometimes dividing the heavens into the N., E., S., and W. quadrants, at other times into N.E., S.E., S.W., and N.W. quadrants. His results, as well as those of others observing in the same manner, are published in the volumes of the *American Journal of Science* since 1837. Rejecting all the observations when the heavens were not divided into four parts, and collecting the remainder, we have of 6,598 observed paths—

800 in N.	733 in N.E.
965 in E.	852 in S.E.
847 in S.	833 in S.W.
889 in W.	679 in N.W.

These numbers imply a small predominance in the southeast. Since the average zenith distance of the middle points of paths is 48°.3, the above numbers give as a centre of gravity, or centre of distribution, a point about 2° from the zenith, in the direction S. 28° E. Mr. HERRICK classified them according to the place from which they proceeded. This makes the centre of distribution a little nearer the zenith, and perhaps more to the east, than it would have been if he had classified them according to their middle points.

Mr. COULVIER-GRAVIER has given in his *Recherches sur les Étoiles Filantes* some deductions from 2,309 paths observed by him. A table given on page 184 implies that a point about 5° from the zenith, and very nearly northeast, is the centre of distribution. This is farther from the zenith than the point before given. The observations are of one person, and are of course affected by his habits of watching. Combining both results we have the centre a little south of east of the zenith, and 1°.6 distant. We may safely regard these deviations from the zenith as errors of observation, and consider the relative frequency of occurrence of meteor-paths in different parts of the visible heavens as *a function of zenith distance only.*

DISTRIBUTION OF METEOR-PATHS AS TO APPARENT ALTITUDES.

We have seen that the relative frequency of meteor-paths in different parts of the visible heavens is a function of zenith distance only. The nature of that function cannot be determined *a priori.* But that there is a very rapid diminution of brilliancy as we approach the horizon is thus shown.

Let m and m^1 in the foregoing figure be the places of two meteor-paths of equal intrinsic brightness, and equal altitude, one seen in the zenith from O, and the other at a distance θ from the zenith. The one at m^1 will appear less bright at O than that at m, both because it is farther from O, and because its light has to traverse obliquely the stratum of air and mists which is near O and much below the region of shooting stars. Since $Om^1 \cos\theta = Om$, the diminution of light from distance is expressed by the factor $\cos^2\theta$.

The relative intensity of a ray of light at the upper surface of the atmosphere, and at the earth's surface, is expressed by the formula *(Bëer, Photometrische Calcul.)*

$$\log \frac{I^1}{I} = -\frac{A}{\cos\theta},$$

where I is the intensity of the ray on entering the atmosphere, I^1 its intensity at the earth's surface, and A a constant to be determined by observation. BOUGUER gives 0.8146 for the value of A, LAMBERT 0.59, SEIDEL 0.78, and SCHLAGINTWEIT 0.587. The ray is here supposed to come from a distant source. As the absorption is almost all in the region below the lowest shooting stars, the same formula may be used by allowing for the diminution of intensity due to distance of the source. This gives us

$$\log \frac{I^1}{I\cos^2\theta} = -\frac{A}{\cos\theta}.$$

Taking the mean of the two smaller values assigned to A, that is 0.5885, and the approximate mean of the two larger values, or 0.8, and computing with them the relative brilliancy of a meteor-path at zenith distances of 5°, 15°, 25°, &c., considering the brilliancy of those in the zenith as unity, we have the following table:

TABLE I.—*Relative brilliancy of shooting stars at different zenith distances.*

Zenith distance.	RELATIVE BRILLIANCY.	
	A = 0.8	A = 0.5885
5°	0.9884	0.9906
15°	0.9070	0.9137
25°	0.7562	0.7729
35°	0.5624	0.5892
45°	0.3590	0.3918
55°	0.1774	0.2124
65°	0.0599	0.0799
75°	0.0066	0.0124
85°	0.0000017	0.000016

The numbers in these columns express the relative intensity of the light from flights of equal inherent brilliancy. The rapid diminution of the light is remarkable, being much greater than that of the light of the fixed stars. The curvature of the earth is neglected in the formula, but this affects seriously only the numbers in last line or two of the table.

We cannot hence conclude the relative numbers of shooting stars seen at different altitudes. The brilliancy of paths seen at a zenith distance of 55° is about one-fifth, or one-sixth, of that which they would have if seen in the zenith. But it does not hence necessarily follow that, looking at that zenith distance, we can see only one-fifth, or one-sixth, of the paths

visible to observers under them. The proportion rendered invisible depends also upon the relative numbers of shooting stars of different magnitudes. Thus as an extreme case suppose all were of equal brilliancy, and at an equal height above the earth. Above a certain almacantaral circle we should see them all, while below that circle we should see none.

The law of distribution of the paths in apparent altitude might be obtained directly by observations arranged for that purpose. But such observations would have to be continued for a considerable time, and would involve great labor. Another method has, therefore, been adopted for obtaining the approximate law of distribution, by using materials collected for other purposes.

If we should compute or measure the zenith distances of a large number of paths seen by one observer we should find them affected by his habits of watching. Thus one who looked habitually to the zenith would see only those near that point, while one looking low down would see few near the zenith. But combining the observations of a large number of persons, we might hope that many of these individual habitudes would counteract each other, and that the aggregate results would be affected only by common errors. I have therefore taken for this purpose various sets of observations made by about forty different persons. Some are given in the *Astronomische Nachrichten*, some in *Quetelet's Correspondence Math. et Phys*, some in *Heis' Wochenschrift*, and some, not yet published, were made in this country in August and November last. For a part, the distances of the middle points of the several paths from the zenith for the time were computed. For the remainder, the place of the zenith was in each case computed, and the distance from it to the middle of the path was carefully measured on a good sixteen-inch globe. The number of paths thus computed, or measured, was 1,393. Of these, 30 were within 10° of the zenith, 60 were between 10° and 20° from the zenith, 142 between 20° and 30°, &c., as in the second column of the following table:

TABLE II.—*Illustrating the distribution of meteor-paths over the sky.*

Zenith distance.	No. of meteors.	Area of sky.	$\frac{\text{No.}}{\text{Area.}}$	Sec³ θ.	$\frac{\text{No.}}{\text{Area sec}^3\ \theta.}$
0° — 10°	30	.01519	1975	1.012	1951
10 — 20	60	.04512	1330	1.110	1198
20 — 30	142	.07366	1928	1.343	1436
30 — 40	197	.09909	1970	1.819	1083
40 — 50	274	.12325	2223	2.828	786
50 — 60	304	.14279	2129	5.299	402
60 — 70	245	.15798	1551	13.248	117
70 — 80	110	.16837	653	57.678	11
80 — 90	31	.17365	178	1510.474	0

If the area of the visible heavens is unity, the numbers in the third column give the areas of the corresponding zones. The numbers of paths divided by the areas give quotients proportional to the numbers of stars at different altitudes for any unit of surface. These form the fourth column. They increase slowly to about 45°, and then rapidly diminish to the horizon.

The number of paths along an oblique line OA, (figure 2,) is greater than that along a perpendicular line OZ. They must be very nearly as the cube of the length of the line, or, disregarding the curvature of the earth, as $\sec^3. \theta$:1. In the fifth column are given the cubes of the secants of 5°, 15°, 25°, &c., these angles being the mean zenith distances for the several zones. In the sixth column are the quotients arising from dividing the numbers in the fourth column by those in the fifth.

These numbers would be nearly constant if all the shooting stars in each direction were visible. Their rapid diminution as θ increases corresponds very strikingly with the diminution of light as shown in the previous table. This correspondence may be better shown by placing the numbers together in the same table, as below. In the first and second columns marked I and I_1, are the numbers for the intensity of the light at different zenith distances. The next column, headed n, is the value of $\frac{\text{No.}}{\text{Area } \sec^3. \theta}$, from table II. Dividing now n by I and I_1, we have the remaining columns. As the curvature of the earth is not taken into account, the last line is of no importance:

TABLE III.—*Comparison of intensity of light of shooting stars with the proportion visible at different altitudes.*

I	I_1	n	$n \div I$	$n \div I_1$
.9884	.9906	1951	1974	1970
.9070	.9137	1198	1321	1311
.7562	.7729	1436	1899	1858
.5624	.5892	1083	1926	1838
.3590	.3918	786	2190	2006
.1774	.2124	402	2266	1893
.0599	.0799	117	1953	1464
.0066	.0124	11	1667	887

Since the numbers in the last two columns are tolerably uniform, it appears that the ratio of the shooting stars visible at different altitudes is very nearly as the intensity of their light. Near the zenith the area of observation and the number of shooting stars actually seen are so small that the law is less evident. But whether we consider the values of n, or $n \div$ I, or $n \div I_1$, or the numbers in the fourth column of the preceding table, it will be probably admitted that 1800 is not far from the value to which n approaches as θ becomes zero. The

product $1800 \times \sec^3. 5^\circ \times .01519 = 27.67$ would then give the number of shooting stars, out of 1393, that should be seen within 10° of the zenith. This is equivalent to one in 50.35. That is, *not quite one in fifty of all the shooting stars seen at a place should have the middle points of their apparent paths within* 10° *of the zenith.*

NUMBER OF SHOOTING STARS THAT COME INTO THE ATMOSPHERE EVERY DAY.

Shooting stars are seen in all countries, and any differences of number for different countries thus far detected may be easily explained by the personal equations of observers, or by differences in the clearness of the atmosphere. It will be assumed that for a given *considerable* period of time the meteors are equally abundant over all parts of the earth's surface.

Their frequency at different altitudes from the earth's surface, however, varies. If we suppose ρ_1 to be the number of the middle points of visible paths that fall in any given period of time into a cubic unit of the space of the region of meteor-paths, we should have ρ_1 a function of the altitude above the earth's surface. Let x represent the altitude, and R the earth's radius. Suppose now an inverted cone whose vertex is at the eye of the observer, whose axis is a vertical line, and whose semi-vertical angle is 10°. In general, shooting stars which have the middle points of their paths within this cone will have the middle points of their apparent paths within 10° of the zenith.* The number in this cone in the given time will be expressed very nearly by the formula,

$$\int_a^b \rho_1 \tan^2 10^\circ \, x^2 \, dx,$$

where a and b are the values of x for the lower and upper surfaces of the region of meteor-paths.

On the other hand, the total number of shooting stars in the given period over the whole earth will be equal to

$$\int_a^b 4 \pi \rho_1 \left(\mathrm{R} + x\right)^2 dx.$$

The whole number visible at one place is 50.35 times the number seen within 10° of the zenith, and therefore 50.35 times the number within the above-described cone. Hence if m is the number in a given period visible in one place, and N the number that would be visible (except for daylight, clouds, moon, &c.,) through the whole earth in the same period, we should have,

$$\mathrm{N} = \frac{m}{50\ 35} \cdot \frac{\int_a^b 4 \pi \rho_1 (\mathrm{R} + x)^2 \, dx}{\int_a^b \pi \rho_1 \tan^2 10^\circ \, x^2 \, dx},$$

or since

$$\frac{4}{50.35 \tan^2 10^\circ} = 2{,}555,$$

we have

$$\mathrm{N} = 2.555 \, m \left\{ \frac{\int_a^b \rho_1 x^2 \, dx + 2\mathrm{R} \int_a^b \rho_1 x \, dx + \mathrm{R}^2 \int_a^b \rho_1 \, dx}{\int_a^b \rho_1 x^2 \, dx} \right\}.$$

* The average apparent distance of the true centres of the meteor-paths from the centres of the apparent paths is about 10′ of arc. The error resulting from the above supposition is therefore exceedingly small.

Now ρ_1 is a function of x, and assuming as heretofore that the observed altitudes are fair examples of the real altitudes, we shall have $\rho_1 = k\rho$ where k is a constant depending for its numerical value on the period of time assumed, the unit of space assumed, and the abundance of meteors during the given period. As we have assumed an equable distribution over the earth's surface, this constant may be removed outside the integral sign. Again, we may, without great error, use finite summation for integration, and drop the common factors k and dx. The equation then becomes,

$$N = 2.555\, m \left\{ \frac{\sum_a^b \rho x^2 + 2R \sum_a^b \rho x + R^2 \sum_a^b \rho}{\sum_a^b \rho x^2} \right\}.$$

In this summation x is to be taken successively $\frac{1}{2}(30+60)$, $\frac{1}{2}(60+90)$, &c., that is, 45, 75, 105, 135, and 165 kilometres, and ρ is 114, 243, 277, 106, and 57. Hence

$$\sum_a^b \rho = 797,$$

$$\sum_a^b \rho x = 76155, \text{ and}$$

$$\sum_a^b \rho x^2 = 8135325.$$

The mean value of R is 6370 kilometres, and therefore

$$N = 10460\, m;$$

that is, *the number over the whole earth is to be considered as* 10460 *times the number visible at one place.*

To obtain this result it was assumed that the shooting stars were uniformly distributed over the earth's surface, and that the conditions of visibility were uniform. If, however, we regard the actual instead of the theoretical case, we find that the numbers vary through the hours of the night. Hence for a fraction of a day, at least, the distribution is not uniform. The rapid diminution towards the horizon already shown indicates the influence of mists, &c., in absorbing the light of these bodies. But for this, more would be seen within 10° of the horizon than in the whole of the rest of the heavens; whereas, of 1393 only 31 were seen in this part of the sky. These mists, of course, vary in different climates. Hence the numbers visible in different places may reasonably be expected to differ. Let, however, a locality have an atmosphere of mean purity, let it in other respects be one of medium character with respect to the number of visible meteor-paths, and let n be the mean hourly number of shooting stars seen in a clear sky at that place, then we may consider that the whole number that under clear skies could be seen over the whole earth in one hour would be $10460n$.

The value of n is of course to be found by observation. It varies for different hours of the night, but may be found either by counting the numbers that appear throughout the night, or by counting at or near midnight.

Mr. E. Bouvard, in the year from October, 1840, to October, 1841, observed at Paris on

every clear, moonless night.* He always watched between 11 and 1 o'clock. During 74 hours and 22 minutes he saw 572 shooting stars. Allowing one-fourth of a minute (the period estimated by him) for recording each path, and we have an average of 8 meteors per hour. By what factor we must multiply the number seen by one observer to obtain the whole number visible at the place, we have no observations, that I know of, to determine. It is probable that this multiplier is as large as four, and that 30 is not too large for the mean value of n. This would give the average number of meteors that traverse the atmosphere daily, and that are large enough to be visible to the naked eye if the sun, moon, and clouds would permit, equal to $30\times 24\times 10460$, or *more than seven and a half millions.*

I shall now assume that the phenomenon called a shooting, or falling star is caused by a small body, (probably a solid,) which was originally moving in its own orbit in the solar system, or in space; that this body coming into the atmosphere of the earth elicits light by the loss of velocity, and is usually itself dissipated before reaching the earth's surface. The term *meteoroid* will be used to denote such a body before it enters the earth's atmosphere.

NUMBER OF METEOROIDS IN THE SPACE WHICH THE EARTH TRAVERSES.

Suppose many small bodies to be distributed through an indefinite space, so that there shall be n bodies in a cubic unit. Suppose that these bodies have all an uniform velocity of v units per second in the same direction. Suppose a large sphere whose radius is R, and which is without attraction, to be at rest in this space. The sphere intercepts in each second as many small bodies as are contained in a right cylinder, whose length is v, and whose radius is R, that is, $\pi\, n\, R^2\, v$ bodies.

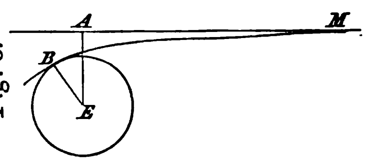


Fig. 3.

Suppose now that the sphere attracts the small bodies. Let the hyberbolic arc MB, figure 3, represent the orbit of one of these bodies which just grazes the surface of the sphere at B. Let MA be its asymptote, and EA the perpendicular on the asymptote from the centre of the sphere, then will the large body intercept all the small bodies in a cylinder whose radius is EA. But if v is the velocity of the small bodies at a great distance from E, and v_1 is the velocity at B, then will $EB\times v_1 = EA\times v$ by the law of conservation of areas. The number of bodies intercepted by the sphere is then evidently $\pi\, n\, v\times EA^2$, that is, $\pi\, n\, v\, R^2\, \frac{v_1^2}{v^2}$. If now v_0 be the velocity which a body would acquire by falling from infinity to the surface of the sphere when acted on only by the attraction of the sphere, then will $v_0^2 + v^2 = v_1^2$, by the law of conservation of force. Hence the sphere will meet in each second with $\pi\, n\, v\, R^2 \left(1+\frac{v_0^2}{v^2}\right)$ bodies.

If the sphere has an uniform motion in any direction, the same reasoning and formulas apply by making v and v_1 represent velocities *relative* to the centre of the sphere.

This reasoning may be extended to several systems of small bodies. Let there be distributed uniformly through the indefinite space in each unit n' bodies of one system, n'' bodies of

**Comptes Rendus*, xiii, 1029.

a second system, n''' bodies of a third system, and so forth, and let the bodies of the first system move in one direction with a velocity v' relative to the sphere; let the bodies of the second system move in another direction with a relative velocity v'', &c., then will the number of bodies which the sphere intercepts in each second be equal to

$$\pi R^2 n' v'\left(1+\frac{v_o^2}{v'^2}\right)+\pi R^2 n'' v''\left(1+\frac{v_o^2}{v''^2}\right)+\pi R^2 n''' v'''\left(1+\frac{v_o^2}{v'''^2}\right)+\&c.$$

Call this N^1, and we may write,

$$N^1=\pi R^2\left(\Sigma n' v'+v_o^2\,\Sigma\frac{n'}{v'}\right),$$

where the summation indicated by Σ extends to all the systems of bodies. If V is the mean value of v', v'', v''', &c., for all the bodies, and n is sum of n', n'', n''', &c., then $\Sigma n' v'=n\,V$. The remaining term is the sum of fractions whose denominators vary. We may, however, write

$$v_o^2\,\Sigma\frac{n'}{v'}=\frac{n\,v_o^2}{V}(1+\theta),$$

when θ is a number, and is evidently positive; for the mean value of fractions having the same numerator is greater than the numerator divided by the mean value of the denominators. Moreover, if the values of v', v'', v''', &c., do not vary widely, θ will be small. Making these substitutions, we have,

$$N^1=\frac{\pi\,n\,R^2}{V}(V^2+v_o^2+\theta\,v_o^2).$$

This formula expresses the number of meteoroids which the earth intercepts, by considering the earth with its atmosphere as the supposed sphere, R its radius measured to the upper part of the region of meteor-paths, V the mean relative velocity of the meteoroids when they come into the earth's attraction, v_0 the velocity acquired by a body falling from infinity to a distance R from the centre of the earth, N^1 the average number of meteoroids coming into the atmosphere in a second, and n the mean number in a cubic unit of the space the earth is traversing in the given period.

If m be the average number visible at one place in a unit of time, we have found that $N=10460m$. The volume of a sphere whose radius is R is $\frac{4}{3}\pi R^3$. Let M be the number of meteoroids in a space equal to the volume of such a sphere; then $M=\frac{4}{3}\pi\,n\,R^3$, and

$$10460m=\frac{3}{4}\cdot\frac{M}{VR}(V^2+v_o^2+\theta\,v_o^2),$$

or

$$M=\frac{4}{3}\cdot\frac{10460\,m\,R\,V}{V^2+v_o^2+\theta\,v_o^2},$$

where m denotes the average number (or fraction of a number) seen in one place per second. If the hourly number is, as before assumed, 30, then m is $\frac{1}{120}$, and

$$M=116.2\left(\frac{RV}{V^2+v_o^2+\theta\,v_o^2}\right).$$

THE MEAN LENGTH OF APPARENT PATHS.

To obtain the mean length of the apparent paths I have computed, or measured, the lengths assigned in 213 European and 803 American observations. The aggregate sum of the lengths is 12804°, which gives an average of 12°.6. As the observations were made by a large number of persons, this result will be nearly free from the individual peculiarities of observers.

NUMBERS OF TELESCOPIC SHOOTING STARS.

Shooting stars are of all degrees of brilliancy, and there are many very faint ones. Almost every hour that a man watches he sees, or thinks he sees, flights which are yet so faint as to leave him in doubt whether they are shooting stars, or only illusions. We may therefore reasonably conclude that large numbers of shooting stars are invisible to the naked eye which yet are visible through the telescope.

This conclusion is verified by observation. In 1854 Messrs. PAPE and WINNECKE observed* at Göttingen for 32 hours, on nights between the 24th of July and the 3d of August. PAPE saw with the naked eye 312 shooting stars, and WINNECKE saw 45 during the same time through a comet-seeker. The diameter of the field of view is not given, but in observations made at the same time diameters of 53′ and 36′, with powers of 30 and 60, were used.

If the apparent length of a meteor-path is l, and the breadth of the field of view of a telescope is b, and if the axis of the telescope is directed towards any part of the area whose length is l and breadth is b, the meteor-path would cross the field of view. If all paths were of the same length b, and were equally distributed over the whole heavens, then would a telescope command a portion of the heavens expressed by the fraction $lb \div$ surface of sky. Meteor-paths diminish somewhat in length as they diminish in brightness. On the other hand, a path may be longer when viewed by aid of the telescope than when seen by the naked eye. Hence for the approximate mean value of l may be taken 12°.6, the mean value of the length of the apparent meteor-paths visible to the naked eye. Let b be 53′, and the ratio of those actually seen through one telescope to all those which are bright enough to be visible in it is

$$53 \times 12.6 : 360 \times 60 \times \frac{180}{\pi}, \text{ or } 1:1853.$$

I have selected the larger diameter of the telescope, that the ratio may be too small rather than too large. For the same reason I prefer to reject in the divisor that part of the surface of the sky which is within 15° of the horizon. This makes the ratio 1:1371.

We have seen that according to BOUVARD's observations one person should see an average of 8 shooting stars per hour. Hence if $\frac{45}{312}$ is taken as the ratio of the number of those seen in a comet-seeker to that of those seen by one person with the naked eye, there should be in each hour $8 \times \frac{45}{312} \times 1371$, or 1582 shooting stars hourly that might be visible through a comet-seeker if the whole heavens could be watched. The ratio between those visible at one place

* Astronomische Nachrichten, xxxix, 113.

and those visible somewhere over the earth has been found to be for common meteors $1 \div 10460$. If the same ratio applies to telescopic meteors, (a supposition to which exceptions may, it is admitted, be reasonably taken,) we have for the whole number of meteoroids coming daily into the air at least $1582 \times 24 \times 10460$, or *four hundred millions.* There is, moreover, no reason to doubt that a further increase of optical power would reveal still larger numbers of these small bodies.

MEAN DISTANCE OF THE SHOOTING STARS.

Although an exact determination of the mean distance of the meteor-paths from an observer is not easily made, yet some idea of the limits of its value may be obtained.

Suppose a small cone whose vertex is at the eye of the observer, whose axis is perpendicular to the horizon, and whose semi-vertical angle is α. Let d be the mean distance from the observer of the middle points falling within this cone, x the distance of an element of the cone from the observer, and ρ the factor expressing the abundance of the meteor-paths in the different elements; then by the same formula as for centre of gravity,

$$d = \frac{\int_a^b \pi \rho \alpha^2 x^3 \, dx}{\int_a^b \pi \rho \alpha^2 x^2 \, dx},$$

where a and b are the heights of the limits of the meteor region. Using summation for integration, and taking the values of ρ, a, and b, before given, we have,

$$d = \frac{\sum_a^b \rho x^3}{\sum_a^b \rho x^2} = 116.6 \text{ kilometres.}$$

Consider now the paths along a line OA, figure 2, inclined to OZ by any angle. Many of those visible at points directly underneath them are invisible at O, because of distance. It seems reasonable that a larger proportion of the more distant than of the nearer ones should disappear. If, then, it be supposed that the number of those which disappear from different points along the line is always proportional to the actual number at each point, and the mean distance be computed on this hypothesis, we shall have a result greater than the mean distance of the paths actually seen.

If the angle AOZ is θ, the mean distance of the paths in a small cone whose axis is OA is evidently $d \sec \theta$, on the above supposition. Representing by φ the numbers in the second column of table II, we have for an approximate expression for the superior limit of the mean distance of all visible shooting stars from an observer,

$$\frac{d \, \Sigma \varphi \sec \theta}{\Sigma \varphi} = 232 \text{ kilometres,}$$

where the summation extends to the several values of φ, and θ has successively the values 5°, 15°, 25°, &c. If the curvature of the earth had been considered, this limit would have

been smaller. Hence the *mean distance of shooting stars from an observer is less than* 232 *kilometres, or* 144 *miles.*

Again, if the mean distance be computed by supposing the disappearing paths to be always those which are farthest from φ, the result will evidently be smaller than the truth. The approximate number of paths that disappear may be thus found. If none disappeared the numbers in the last column of table II would be constant, and equal to 1800, the earth's curvature being neglected. The quotients of 1800 divided by the numbers in that column may be represented by q, and then q will express the proportion of all the paths along OA that are visible at O. We then should have the equation,

$$\int_a^{x_1} \pi\, a^2 \sec^3 \theta\, \rho\, x^3\, dx = q \int_a^b \pi\, a^2 \sec^3 \theta\, \rho\, x^2\, dx,$$

where x_1 represents the altitude of the farthest visible paths. Using summation and observing that $\Sigma_a^b \rho\, x^2 = 8135325$, we have

$$8135325\, q = \Sigma_a^{x_1} \rho\, x^2.$$

In this summation so many values of $\rho\, x^2$ as are contained entirely in $8135325q$ are to be taken, and with the next value of x such a value of ρ is to be found as will complete the equation. Let ρ_0 stand for the values of ρ thus used, including the last. Then if δ is the mean distance from O of the visible paths in the cone, we shall have

$$\delta = \frac{\sec\theta\, \Sigma_a^{x_1} \rho_0\, x^3}{\Sigma_a^{x_1} \rho_0\, x^2}.$$

Computing δ when θ is 5°, 15°, 25°, &c., and the mean value of δ for the whole heavens will be equal to the expression,

$$\frac{\Sigma \varphi \delta}{\Sigma \varphi}, \text{ or 140.7 kilometres;}$$

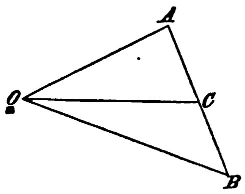
that is, the mean distance of all shooting stars from an observer (supposing the data on which the computations are based to be correct) is greater than 140 kilometres, or 87 miles. This limit, however, cannot be very positively asserted, since the errors from various sources, especially those from using summation instead of integration, may in this case be quite considerable.

MEAN FORESHORTENING OF THE METEOR-PATHS BY PERSPECTIVE.

To determine the effect of perspective in shortening the apparent paths of meteors, we need the following geometrical proposition:

If a sphere whose radius is a be supposed to have an indefinite number of diameters, and the extremities of these diameters are uniformly distributed over the surface of the sphere, and if O be a point without the sphere whose distance from the centre of the sphere is b, then will the mean value of the angles at O subtended by all the diameters be equal to $\frac{\pi}{2} \cdot \frac{a}{b}$.

Fig. 4.



For let C be the centre of the sphere, AB a diameter, and θ the angle ACO. The mean value of AOB will be twice that of AOC. The tangent of AOC is $\frac{a \sin \theta}{b - a \cos \theta}$. Let the whole number of the radii of the sphere be n, then the number which will make the angle ACO greater than θ, and less than $\theta + d\theta$, is $2\, n\, \pi \sin \theta\, d\, \theta$ divided by $4\, \pi$, or $\frac{1}{2}\, n \sin \theta\, d\, \theta$. Multiply the value of AOC for each value of θ by the number of radii for which ACO is between θ and $\theta + d\theta$, and divide the sum of the products by the whole number of radii, or n, and we have the mean value of AOC. This is evidently,

$$\frac{1}{2}\int_0^\pi \tan^{-1}\left(\frac{a \sin \theta}{b - a \cos \theta}\right) \sin \theta\, d\, \theta.$$

The value of this expression, when b is greater than a, is $\frac{\pi}{4} \cdot \frac{a}{b}$. Hence the mean value of AOB is $\frac{\pi}{4} \cdot \frac{2a}{b}$, which was to be proved.

The mean effect of foreshortening by perspective may therefore be thus expressed. Let the diameter of the sphere be bent into the arc of a circle whose radius is b, then the angle it thus measures is to the mean value of AOB as a square to its inscribed circle.

This result is independent of the ratio of a to b, except that it must be less than unity. Hence the proposition applies to any number of equal, or unequal lines viewed by an observer, provided only that the directions of the lines be properly distributed.

If shooting stars came directly downward we should see all that were coming towards us, since they would be near the zenith. We should see few, if any, whose paths are nearly at right angles to the line of vision, for those would be down near the horizon, and concealed by mists and smoke. It seems probable that in this case the mean effect of foreshortening would be a little greater than for the diameters of a sphere.

Again, if the paths were all parallel to the horizon we should see an undue number moving nearly at right angles to the line of vision; for those which are diminished most by foreshortening are near the horizon, and hence mainly hidden.

But the directions of the meteor-paths are from all parts of the heavens, from horizon to zenith. It seems reasonable to conclude that the mean effect of foreshortening is intermediate between that for paths coming from points in the horizon and that for paths coming from the zenith. Hence it ought to be nearly represented by that of the diameters of the sphere.

This conclusion may be thus expressed. The mean length of the observed paths of shooting stars is found to be $12^\circ.6$. If every path was turned about its middle point, and bent into an arc of a circle of which the observer's eye was the centre, the mean apparent length would be increased in the ratio of a square to its inscribed circle; that is, it would be equal to $\frac{4}{\pi} \times 12^\circ.6$, or about $16^\circ.04$.

AVERAGE LENGTH OF THE VISIBLE PART OF METEOR-PATHS.

If l be the length of an arc, and b the radius, the angle subtended is measured by $\frac{l}{b}$. If we consider any number n of arcs, the average of the angles subtended is $\frac{1}{n}\Sigma\frac{l}{b}$. If b is constant, or is proportional to l, the value of this expression would be equal to the mean value of l divided by the mean value of b. Applying this to the meteor-paths, the higher, and hence more distant paths, are probably longer than the lower and nearer ones. The value of b does not moreover become very small. Hence we may consider $\frac{1}{n}\Sigma\frac{l}{b}$ as approximately $\frac{l_0}{b_0}$, where l_0 is the mean length and b_0 is the mean distance. We have, then, approximately,

$$\frac{l_0}{b_0}=\frac{16.04\,\pi}{180}=0.28.$$

Since the mean of fractions having the same numerator is greater than the numerator divided by the mean of the denominators, we may, however, consider l_0 as less than $0.28b$. The difference from this cause is probaly less than one-tenth of the whole amount, as will be seen by summing the values of $\frac{1}{b}$ instead of those of b.

Inasmuch as the value of b_0 is found to be between 140 and 232 kilometres, we have l^0 comprised between 39 and 65 kilometres, or between 24 and 40 statute miles, or between 21 and 34 geographical miles. The smaller number is without doubt much nearer the truth than the other.

THE MEAN DURATION OF FLIGHT AND THE MEAN VELOCITY OF THE SHOOTING STARS.

Mr. WARTMANN, of Geneva, gives for the aggregate duration of 368 flights observed during one night in August, 1838, by six observers, $180^s.33$, which is $0^s.49$ for each flight. The mean of 499 estimates made in August and November last is $0^s.418$. The mean of the whole 867 estimates is $0^s.45$. If the durations given by those observers who are accustomed to estimate small intervals of time had alone been taken, the result would have been very nearly the same. Almost all observers agree that the mean duration of flight is not much, if any, greater than half a second.*

A mean duration of half a second, and a mean length of path between 39 and 65 kilometres, seem to imply a mean velocity between 78 and 130 kilometres per second. The smallest of these velocities (more than 48 miles) is twice and a half the velocity of the earth in its orbit about the sun. This cannot consist with the supposition that the meteoroids all move in closed orbits about the sun. Hence we must accept as highly probable, one, or more, of these three conclusions, viz:

1st. That the length of track is too long, which seems to involve that the altitudes, on which all the computations are based, are on the whole too large. All the altitudes greater than 150 kilometres might, I think, have been safely rejected.

* A shortening of the duration of flight toward morning is indicated by theory, and is confirmed by observation.

2d. That the estimates of time are in general too small. This is quite probable. The mind may not make proper allowance for the time that elapses after the shooting star is seen before the eye is fairly directed to the place of the path.

3d. That many of the meteoroids move in hyperbolic orbits about the sun. Whatever may be said of the sporadic meteors, this cannot be true of the members of the August and November groups.

The sporadic shooting stars cannot all belong to one narrow ring which has a diameter nearly equal to that of the earth's orbit.

Such a ring would have to be but little inclined to the ecliptic in order to furnish meteors throughout the year. The bodies could not have a retrograde motion, else shooting stars would be seen only in the morning hours, and would moreover have a very distinctly marked radiant.

They cannot have a direct motion; for their velocity must then be nearly equal to that of the earth, and yet a little less than it, in order that more be seen in the morning than in the evening. Their relative velocity on entering the atmosphere would be not much greater than that of a body falling to the earth from an infinite distance,—that is, not much greater than 11 kilometres per second. So small a mean velocity is entirely inconsistent both with direct observation and with the conclusions given above, on page 16.

We might, it is true, suppose the ring to have a considerable breadth, in which case the meteors would have a larger mean relative velocity. But if the breadth be such as to furnish a velocity at all consistent with observation, we have no longer a ring lying between the orbits of Mars and Venus, but a disk extending much beyond these planets.

A large portion of the meteoroids must, when they meet the earth, have absolute velocities grater than the earth's velocity in its orbit; or else—

The sporadic meteors have a series of radiants at some distance from the ecliptic, and hence come from a series of rings considerably inclined to the earth's orbit;

For shooting stars cannot have relative motions upwards from the earth when they enter the atmosphere. If, then, the absolute velocities of the meteoroids were all less than those of the earth, their relative motions (disregarding the earth's attractions) would all be from points of the heavens less than 90° from that point to which the earth is moving. To an observer early in the evening but a small part of this hemisphere is above the horizon, while in the morning almost all of the hemisphere is visible. Hence, either the number of those seen in the morning should be *very much greater* than that of those seen in the evening, or else there should be a radiant in that part of the heavens which is above the horizon in the earlier hours of the night. If the earth's attraction be considered, the numbers seen in the evening would be somewhat increased, as also the numbers seen in the morning. The disproportion, therefore, between the morning and evening hours would be slightly diminished. But even with this allowance the increase through the night would be greater than the observed increase, unless one of the two suppositions above given is true.

To determine the amount of this increase there is great deficiency of reliable data. Mr.

HERRICK estimated that about three times as many were to be seen in the morning as in the evening. Mr. COULVIER-GRAVIER gives the following table* for the mean hourly numbers at different hours of the night.

5^h to 6^h—7.2	12^h to 1^h—10.7
6 to 7—6.5	1 to 2—13.1
7 to 8—7.0	2 to 3—16.8
8 to 9—6.3	3 to 4—15.6
9 to 10—7.9	4 to 5—13.8
10 to 11—8.0	5 to 6—13.7
11 to 12—9.5	6 to 7—13.0

As the observations from which these numbers have been obtained have never been published, we cannot say what confidence is to be given to them.

DISTRIBUTION OF THE ORBITS OF THE METEOROIDS IN THE SOLAR SYSTEM.

There are at least three suppositions respecting the distribution of the orbits of the meteoroids in the solar system which are naturally suggested. Either of them may be considered as plausible, and one does not necessarily exclude another.

1st. They may form a number of rings like the August group, cutting or passing near the earth's orbit at many points along its circuit. The sporadic shooting stars may be outlying members of such rings.

2d. They may form a disk in or near the plane of the orbits of the planets.

3d. They may be distributed at random, like the orbits of comets.

According to the first of these suppositions there should be a succession of radiants corresponding to the several rings. Professor HEIS and R. P. GREY, esq., believe that they have detected such a series. Continued observation directed to this end will probably decide whether the meteoroids belong entirely, or mostly, to rings.

According to the second supposition the apparent paths of the sporadic meteors should, if produced in the direction of the motion, all cut the ecliptic below the horizon. For the absolute motion of the meteoroid and the earth's motion being both in or near the ecliptic, the resultant relative motion should be from some point in or near the ecliptic. That point should be above the horizon, since the body must move downward to enter the atmosphere. As the apparent path produced backward cuts this point, it will, if produced forward, cut the ecliptic below the horizon.† We have thus a simple means of determining whether the sporadic meteors come exclusively, or even largely, from a disk or lenticular-shaped group like that which the Zodiacal Light is often supposed to indicate.

If the third supposition is true, the mean velocity of the meteors is a function of the numbers of shooting stars in the different hours of the night. For if the velocity is very small few would be seen in the evening, while if it is very large there should be nearly as many in the evening as in the morning.

* Recherches sur les Meteores, p. 220.

† The earth's attraction tends to turn the direction of the path downward, or carry the point from which the meteor comes away from the ecliptic towards the zenith. This will sometimes, though rarely, affect the above rule.

By the supposition the absolute motions would evidently be directed from all parts of the celestial sphere in equal numbers. Consider first all those bodies that have a given absolute velocity v' not less than the earth's velocity v. Let O, figure 5, be the point to which the earth is moving, and OO′ a lune of the celestial sphere, then a meteor whose absolute motion is from some point of the area *abcd* will have its relative motion from an area ABCD nearer to O. Let $OA = OB = \theta$, and v'' represent the meteor's relative velocity. Let n be the number of meteors coming from all parts of the celestial sphere, n' the number whose relative motions are from OAB, and $d\varphi$ be the angle O, then we have,

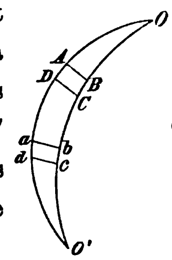


Fig. 5.

$$n' = \frac{n d\varphi}{4\pi}(1 - \cos Oa).$$

But by the law of composition of motion we also have,

$$v'^2 = v^2 + v''^2 - 2\,v\,v''\cos\theta,$$

or

$$v'' = v\cos\theta \pm (v^1 - v^2 \sin^2\theta),$$

and

$$v'\cos Oa = v''\cos\theta - v.$$

Hence,

$$1 - \cos Oa = 1 + \frac{v}{v'}\sin^2\theta \mp \cos\theta\left(1 - \frac{v^2}{v'^2}\sin^2\theta\right)^{\frac{1}{2}},$$

and

$$n' = \frac{n d\varphi}{4\pi}\left\{1 + \frac{v}{v'}\sin^2\theta \pm \cos\theta\left(1 - \frac{v^2}{v'^2}\sin^2\theta\right)^{\frac{1}{2}}\right\}.$$

Since v' is greater than v, or equal to it, the sign of the radical in the value of v'' does not change.

Let now Z be the zenith of an observer, O be the point to which the earth is moving, ACA′ be the horizon, OZ be a, AOC be φ, and AOB be $d\varphi$. The number of meteors whose relative motions are from the two vertically opposite triangles OAB and OA′B′, is obtained by adding to the value of n' given above its value when θ is made $\pi - \theta$, which gives $\frac{n d\varphi}{2\pi}(1 + \frac{v}{v'}\sin^2\theta)$. Those visible by any observer must come from points above the horizon. Let it be assumed that the number of those that are actually visible is proportional to the number of those coming from the visible hemisphere. If N_0 represents this latter number, then

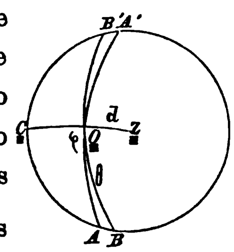


Fig. 6.

$$N_0 = \int_0^\pi \frac{n d\varphi}{2\pi}\left(1 + \frac{v}{v'}\sin^2\theta\right)$$

But $\tan\theta = \cos a \sec\varphi$, since ACO is a right angle, and hence

$$\text{Sin}^2\theta = \frac{\cos^2 a \sec^2\varphi}{1 + \cos^2 a \sec^2\varphi},$$

Substituting and integrating we have,

$$N_0 = \frac{n}{2}\left(1 + \frac{v}{v'}\cos a\right).$$

To obtain this equation v' has been supposed equal to or greater than v. If v' is less than v there is a maximum value of θ, determined by the equation $v \sin\theta = v'$, and the radical in the value of v'' changes sign. The same expression for N_0 would, however, be found in this case by proceeding as follows. The number of shooting stars whose relative motion is from the triangle OAB, figure 6, would be equal to the whole number whose absolute motion is from the lune, diminished by those meteors for which θ exceeds a certain value OA. The amount of this diminution is $\frac{nd\varphi}{4\pi}$ multiplied by the difference of the two values of $1 - \cos Oa$ obtained by changing the sign of the radical—that is, by $\frac{nd\varphi}{2\pi}(1 - \frac{v^2}{v'^2}\sin^2\theta)^{\frac{1}{2}}$. Hence,

$$N_0 = n - \frac{n}{2\pi}\int_{-\phi'}^{\phi'} (1 - \frac{v^2}{v'^2}\sin^2\theta)^{\frac{1}{2}} \cos\theta d\varphi,$$

where $\tan\theta = \cos a \sec\varphi$, and φ' is the value of φ when $v \sin\theta = v'$. Substituting and integrating, we have as before,

$$N_0 = \frac{n}{2}(1 + \frac{v}{v'}\cos a).$$

Let l be the latitude of a place, h the hour angle counting from the time when the point to which the earth is moving is on the meridian, and δ the declination of that point; then

$$\cos a = \sin l \sin\delta + \cos l \cos\delta \cos h.$$

The mean value of δ for the year is zero, and hence for the entire year we may use the equation $\cos a = \cos l \cos h$, and hence, approximately,

$$N_0 = \frac{n}{2}(1 + \frac{v}{v'}\cos l \cos h).$$

If we compute according to this formula the value of $N_0 \div n$ for the several hours of the night, for the latitude of New Haven, and that of Paris with the three values $v' = v\sqrt{2}$, $v' = v$, and $v' = \frac{4}{5}v$, we shall have the following table:

TABLE IV.—*Hypothetical distribution of the shooting stars through the hours of the night.*

Hours of the night.	New Haven.			Paris.		
	$v' = v\sqrt{2}$	$v' = v$	$v' = \frac{4}{5}v$	$v' v = v\sqrt{2}$	$v' = v$	$v' = \frac{4}{5}v$
h. 6	.875	.970	.765	.732	.829	.911
7	.862	.954	.756	.725	.818	.897
8	.825	.907	.730	.701	.785	.856
9	.765	.832	.687	.664	.732	.791
10	.688	.735	.633	.616	.665	.706
11	.597	.622	.569	.560	.585	.606
12	.500	.500	.500	.500	.500	.500
1	.403	.378	.431	.440	.415	.394
2	.312	.265	.367	.384	.335	.294
3	.235	.168	.313	.336	268	.209
4	.175	.093	.270	.299	215	.144
5	.138	.046	.244	.275	182	.103
6	.125	.030	.235	.268	171	.089

The velocities have been considered as uniform. But it is evident that if some shooting stars have larger and some smaller velocities, the hourly distribution ought to be approximately that corresponding the mean velocity. It has been assumed, moreover, that the number seen is proportional to that of those coming from all parts of the visible heavens. But if the number seen is proportional to the number that strike the upper surface of the atmosphere within the circumference of a given circle of moderate dimensions, the centre of the circle being in the zenith of the observer, then must the number coming from each element of the visible heavens be multiplied by the cosine of the zenith distance of that element. By this supposition the hourly numbers would be increased in the morning and diminished in the evening from those given in table IV. Neither of these suppositions is probably strictly correct.

It should be borne in mind, on the other hand, that the earth's attraction tends to make the numbers more uniform through the night. There should also be less difference in the hourly numbers during the last half of the year than in the first half, since the point to which the earth is moving is then north of the equator.

If now we compare the numbers in table IV with Mr. HERRICK'S estimate, and with Mr. COULVIER-GRAVIER'S hourly numbers given above, a mean velocity of the shooting stars is indicated as large as, or larger than, that of comets in parabolic orbits. The nature of the data will not, however, allow this conclusion to be strongly urged. Yet that the mean velocity is greater than that of the earth in its orbit seems almost certain.

NUMBER OF METEOROIDS IN THE SPACE WHICH THE EARTH IS TRAVERSING.

We have found that, of the space through which the earth is travelling, a volume equal to that of the earth (atmosphere included) contains a mean number of meteoroids expressed by the equation,

$$M = 116.2 \frac{RV}{V^2 + v_0^2 + \theta v_0^2}.$$

In this equation V is the mean relative velocity of the meteoroids. If the absolute velocities were all uniform, and the points from which they come uniformly distributed over the heavens, we should have evidently,

$$V = \tfrac{1}{2} \int_0^\pi (v^2 + v'^2 - 2vv' \cos w)^{\frac{1}{2}} \sin w dw = v + \tfrac{1}{3} \frac{v'^2}{v}.$$

For v' we may use, as an approximation, the *mean* absolute velocity. If $v' = v$, then $V = \frac{4}{3} v$. If $v' = v\sqrt{2}$, then $V = \frac{5}{3} v$. As the mean velocity of the meteoroids seems to be greater than that of the earth, and more nearly equal to that of bodies moving in parabolic orbits, the latter value will be used for V. Computing M on this supposition, neglecting the term θv_0^2, we have its value more than 14,000. If we deduct for the volume occupied by the atmosphere, we have more than 13,000 bodies in each volume of the size of the earth, each body such as would furnish a shooting star visible under favorable circumstances to the naked eye.

If telescopic meteors are considered, this number ought doubtless to be increased at least forty-fold.

There seems to be little reason for supposing that the space near the earth's orbit is very much more thickly strewn with these bodies than other parts of the solar system. That they are grouped according to some law is altogether probable. But a velocity different from that of the earth implies, of necessity, that they are not grouped closely about the earth's orbit.

These bodies cannot be regarded as the fragments of former worlds; they are rather the materials from which worlds are forming. If astronomy furnishes any measure of their total mass, we may therefrom obtain some idea, rude though it be, of the mass of the individuals.

RIFLED GUNS.

BY W. H. C. BARTLETT.

PART I.

STRAINS TO WHICH RIFLED GUNS ARE SUBJECTED.

THE general introduction of the rifled gun into the military service has made an epoch in the art of war. The great range, accuracy of fire, and increased penetrating power of the missiles of these guns, have greatly expanded the dimensions of defensive works on land and changed materially the construction and character of our military marine. Such important results afford strong temptation to push the means by which they are obtained beyond the limits of prudence, and instances of disaster have created the impression that, in some cases, these limits have already been passed.

The rifled gun is not only subjected to the usual lateral strain of an ordinary smooth-bore, but also to a strain in the direction of its length, and one of torsion around its axis; and doubts have been expressed whether these strains, simultaneously applied and oft repeated, may not prove an overmatch for the endurance of the material of which this kind of gun is made. Such doubts are to be confirmed or dispelled only by numerical estimates of the strains, and the purpose of the present paper is to construct, upon principle, a set of formulas by which these estimates may be made. Many rifled guns have failed; but the same may be said of all guns, smooth and rifled; and the question is, are these failures unavoidable in the rifle?

A good gun can only result from the principles of physics, rightly applied by the rules of mechanics. Of course, such a gun may come from accident, but the chances are so adverse as to make it highly improbable. Bad guns must ever fail. Good ones may and often do fail from improper treatment. If the missile clog, explode in the bore, be not rammed home, or the powder partake of the character of a fulminate in quickness, the best guns must yield. The laws of matter are immutable. No gun can stand everything. And yet, the failure of a good gun from causes which would break any gun, is as likely to destroy confidence in all guns of the same kind as the failure of a bad one under legitimate tests, and just as likely to produce a prejudice as a well-founded conviction. It is, therefore, quite as important to know how to treat guns as to know how to make them. The circumstances attending the failure of a gun are rarely ever known, and the verdict of those charged with the investigation of the causes of failure is almost always tainted with uncertainty.

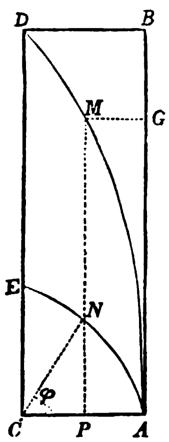
It ought to be too late for the question of gun failure to come up. The country should possess, at this late day, an efficient and safe system of artillery, with a body of officers suffi-

ciently instructed in its principles and use to avoid the risk, much more the certainty, of failure. We have no such system. Of the principal guns now in use, some have come from individual enterprise at home, while others have been imported from abroad. These guns are various in pattern, and require different modes of treatment. As a system, they are wanting in that degree of uniformity, and consequently in that simplicity which comes from uniformity, essential to efficient concert on the part of large bodies of men of various grades of intelligence, that must act together in their use. In the transfer of a gunner from one station to another, he should never be conscious that he has changed his piece, except in its character of gun, howitzer, or mortar; otherwise, just that kind of disaster which has characterized some of our artillery practice during the present war must be expected.

While the investigation here proposed is intended to be general, and applicable to all rifled guns, yet, as the object is numerical results, and as these results must vary with the character of the twist, some one class of these guns must be taken as a type. Take those constructed by Mr. PARROTT.

The calibres of these guns vary from two and nine-tenths to ten inches, and the weights of the missiles range from ten to three hundred pounds. As before remarked, they, like all rifled guns, are subjected to three strains. The first stretches in the direction of the circumference, the second in the direction of the length, and the third twists around the axis. The object is to find the second and third in terms of the first. The first being known from experiment, the latter become known. The known shape and dimensions of the guns, and the strength of the material of which they are made, complete the requisite data, and the application of the formulas will be easy.

LAW OF THE TWIST.



(1)—The twist is increasing, starting with nothing at or near the bottom of the bore and reaching a maximum at the mouth, and determined in this wise, viz: C A B D represents the development of so much of the cylindrical bore as is traversed by a single groove on a plane tangent along an element of the cylinder which coincides with the groove where it begins at the bottom. A C is the development of that part of the circumference, at the bottom, into which the entire groove is projected; A N E is a quadrantal arc, described with C as a centre and C A as a radius. The quadrant A N E is divided into any number of equal parts. A B, which is the length of the groove in the direction of the axis of the gun, is divided into the same number of equal parts. Lines are drawn through the points of division on the quadrant, parallel to A B, and through those of A B parallel to A C; where these lines meet, taken in their order from A, give points in the developed groove. P M and G M are two of such lines, and M is a point on the curve sought.

EQUATION OF THE DEVELOPED GROOVE.

(2)—Draw the radius C N, and denote the angle A C N by φ. Call the radius C A, r; take

the origin at A; AB as the axis y and AC as that of x; then will $AG = y$ and $AP = x$. And because the arc AN and AG must, from the construction, bear to one another a constant ratio, call this ratio m, and we have

$$y = mr\varphi \quad \therefore \quad \varphi = \frac{y}{mr}.$$

$$x = r - r\cos\varphi = r\left(1 - \cos\frac{y}{mr}\right). \tag{1}$$

EQUATION OF A HELIX OF THE GROOVE.

(3)—Now wrap the developed surface around the cylinder of the bore; denote the radius of the latter by ρ. Conceive a plane through the axis of the gun to revolve about that line and to start from a position in which it contains the element of the cylinder upon which the groove starts at the bottom. Denote the variable angle which this plane makes with its initial position by Ψ; then will

$$x = \rho\,\Psi.$$

and Eq. (1)

$$\rho.\Psi = r\left(1 - \cos\frac{y}{mr}\right) \tag{2}$$

whence

$$y = mr\cos^{-1}\left(1 - \frac{\rho\,\Psi}{r}\right);$$

and denoting the length of the groove in the direction of the axis by l, and recollecting that for $y = l$ we have $r = \rho\Psi$, we get,

$$l = mr.\cos^{-1}(1-1) = \tfrac{1}{2}\pi.mr.$$

or

$$mr = \frac{2l}{\pi}.$$

Denote by n the ratio of the circumference of the bore to that portion of the same into which the entire helix is projected, then will

$$r = \frac{2\pi\rho}{n},$$

and these substituted in Eq. (2) give

$$\left.\begin{array}{l} \rho.\Psi = \dfrac{2\pi}{n}.\rho.\left[1 - \cos\left(\tfrac{1}{2}\pi.\dfrac{y}{l}\right)\right] \\ \rho = \text{constant} \end{array}\right\} \tag{3}$$

for the equations of a helix of the groove, with the origin on the axis of the piece; or

$$\left.\begin{array}{l} L = \rho\,\Psi - \dfrac{2\pi}{n}.\rho.\left[1 - \cos\left(\tfrac{1}{2}\pi.\dfrac{y}{l}\right)\right] = 0; \\ \rho = \text{constant.} \end{array}\right\} \tag{4}$$

(4)—Differentiating Eq. (3), dividing by dt, and making

$$\frac{dy}{dt} = V = \text{velocity of the projectile,}$$

we have

$$\frac{d\Psi}{dt}=\frac{\pi^2}{nl}.V. \sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right); \qquad (5).$$

Differentiating again, and dividing by dt, we find

$$\frac{d^2\Psi}{dt^2}=\frac{\pi^3}{2\,n.l^2}.V^2. \cos\left(\tfrac{1}{2}\pi\frac{y}{l}\right)+\frac{\pi^2}{n.l}. \sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right).\frac{d^2y}{dt^2}. \qquad (6)$$

(5)—Dividing equation (5) by 2π, and denoting the number of turns of the missile in a unit of time by ν, we find

$$\nu=\frac{\pi}{2\,n.l}.V. \sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)$$

At the mouth of the piece, $y=l$, and

$$\nu=\frac{\pi}{2\,n.l}.V \qquad (7)$$

(6)—Denoting the distance passed over by the projectile while turning once on its axis by d, we have

$$d=\frac{V}{\nu}=\frac{2\,n.l}{\pi}. \qquad (8)$$

(7)—The passage of the missile from its place of rest to the mouth of the piece is a case of constrained motion, and the conditions of constraint are given by Eq. (4.)

Make the following notation, viz:

$P=$ intensity of the force on back of the projectile in direction of axis.

$M=$ mass of the projectile.

$I=$ moment of inertia of the projectile with reference to axis of piece.

$N=$ normal pressure on edge of land.

$f=$ Coefficient of friction.

$\theta=$ Angle of inclination of an element of the twist to axis of piece.

$s=$ Any indefinite arc of the helix.

Then will

$$\left.\begin{aligned}&\left(P-M.\frac{d^2y}{dt^2}\right).\,\delta y-I.\frac{d^2\Psi}{dt^2}.\,\delta\Psi-f.N.\,\delta s=0.\\&\delta s=\rho.\sin\theta\,\delta.\Psi+\cos\theta.\,\delta y;\end{aligned}\right\} \qquad (A)$$

which latter substituted above gives

$$\left(P.-M.\frac{d^2y}{dt^2}.-f.N\cos\theta\right)\delta y-\left(I.\frac{d^2\Psi}{dt^2}+f.N.\rho.\sin\theta\right)\delta\Psi=0.$$

From Eq. (4) we have

$$\rho.\,\delta\Psi+\left[\Psi-\frac{2\pi}{n}\left(1-\cos\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)\right)\right]\delta\rho-\frac{\pi^2}{n.l}.\rho.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right).\,\delta y=0.$$

or, Eq. (4),

$$\rho.\,\delta\Psi-\frac{\pi^2}{n.l}.\rho.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)\delta y=0.$$

$$\delta\rho=0.$$

Multiply the first by λ, second by λ^1, and adding to the equation above,

$$\left.\begin{array}{c}\left(\mathrm{P}-\mathrm{M}.\dfrac{d^2 y}{dt^2}-f.\mathrm{N}.\cos\theta-\lambda.\dfrac{\pi^2}{n.l}.\rho.\sin\left(\frac{1}{2}\pi.\dfrac{y}{l}\right)\right)\delta\rho \\ -\left(\mathrm{I}.\dfrac{d^2\Psi}{dt^2}+f.\mathrm{N}.\rho.\sin\theta-\lambda\rho\right)\delta\Psi \\ +\lambda^1.\delta\rho\end{array}\right\}=0.$$

whence,

$$\mathrm{P}-\mathrm{M}.\frac{d^2 y}{dt^2}-f.\mathrm{N}.\cos\theta-\lambda.\frac{\pi^2}{n.l}.\rho.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)=0; \tag{9}$$

$$\mathrm{I}.\frac{d^2\Psi}{dt^2}+f.\mathrm{N}.\rho.\sin\theta-\lambda.\rho.=0; \tag{10}$$

$$\lambda^1=0 \qquad (10)^1$$

$$\mathrm{N}=\lambda.\sqrt{\left(\frac{d\,\mathrm{L}}{\rho\,d\,\Psi}\right)^2+\left(\frac{d\,\mathrm{L}}{d\,\rho}\right)^2+\left(\frac{d\,\mathrm{L}}{d\,y}\right)^2}=\lambda.\sqrt{1+\frac{\pi^4}{n^2\,l^2}.\rho^2.\sin^2\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)}.$$

From Eqs. (9) and (10) we have

$$\lambda=\frac{\mathrm{P}-\mathrm{M}.\dfrac{d^2 y}{dt^2}-f.\mathrm{N}.\cos\theta}{\dfrac{\pi^2}{n.l}.\rho.\sin\left(\frac{1}{2}\pi.\dfrac{y}{l}\right)};$$

$$\lambda=\frac{\mathrm{I}.\dfrac{d^2\Psi}{dt^2}+f.\mathrm{N}.\rho.\sin\theta}{\rho}$$

Equating these values, we get,

$$\mathrm{P}-\mathrm{M}.\frac{d^2 y}{dt^2}-\mathrm{N}.\left[f.\cos\theta+f.\rho.\sin\theta.\frac{\pi^2}{n.l}.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)\right]-\mathrm{I}.\frac{d^2\Psi}{dt^2}.\frac{\pi^2}{n.l}.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)=0. \tag{11}$$

Make

$$a=\sqrt{1+\frac{\pi^4}{n^2.l^2}.\rho^2.\sin^2\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)} \tag{12}$$

then will

$$\mathrm{N}=\lambda.a=\frac{\mathrm{I}.\dfrac{d^2\Psi}{dt^2}+f.\mathrm{N}.\rho.\sin\theta}{\rho}a$$

$$\mathrm{N}=\frac{\mathrm{I}.\dfrac{d^2\Psi}{dt^2}.a}{\rho.(1-a.f.\sin\theta)}.$$

Substituting this in Eq. (11,) we find

$$\mathrm{P}-\mathrm{M}.\frac{d^2 y}{dt^2}-\mathrm{I}.\frac{d^2\Psi}{dt^2}\left[\frac{a.f.\left(\cos\theta+\rho.\sin\theta.\dfrac{\pi^2}{n.l}.\sin\left(\frac{1}{2}\pi.\dfrac{y}{l}\right)\right)}{\rho\,(1-a.f.\sin\theta)}+\frac{\pi^2}{n.l}.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right)\right]=0.$$

Make

$$\mathrm{A}^1=\frac{a.f.\left(\cos\theta+\rho.\sin\theta.\dfrac{\pi^2}{n.l}.\sin\left(\frac{1}{2}\pi.\dfrac{y}{l}\right)\right)}{\rho\,(1-a.f.\sin\theta)}+\frac{\pi^2}{n.l}.\sin\left(\tfrac{1}{2}\pi.\frac{y}{l}\right). \tag{13}$$

and the above becomes,

$$P - M.\frac{d^2 y}{dt^2} - I.\frac{d^2 \Psi}{dt^2}. A^1 = 0.$$

Substituting the value of $\frac{d^2 \Psi}{dt^2}$, as given by Eq. (6), we find

$$\frac{d^2 y}{dt^2} = \frac{P - A^1. I. \frac{\pi^3}{2 n. l^2} \cos\left(\frac{1}{2}\pi.\frac{y}{l}\right) V^2.}{M + A^1. I. \frac{\pi^2}{n. l} \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right)};$$

Multiplying both numbers by M, and subtracting from $P = P$,

$$P - M.\frac{d^2 y}{dt^2} = A^1. I. \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right). \frac{P + M. V^2. \frac{\pi}{2 l}. \cot\left(\frac{1}{2}\pi.\frac{y}{l}\right)}{M + \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right). I. A^1}. \qquad (14)$$

Again, substituting the value of $\frac{d^2 y}{dt^2}$, as given in Eq. (6), we find

$$\frac{d^2 \Psi}{dt^2} = \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right) \frac{P + M. V^2. \frac{\pi}{2 l}. \cot\left(\frac{1}{2}\pi.\frac{y}{l}\right).}{M + \frac{\pi^2}{n. l}. \sin.\left(\frac{1}{2}\pi.\frac{y}{l}\right). I. A^1.}$$

$$\frac{I}{\rho}.\frac{d^2 \Psi}{dt^2} = \frac{I}{\rho}.\frac{\pi^2}{n. l}. \sin.\left(\frac{1}{2}\pi.\frac{y}{l}\right). \frac{P + M. V^2. \frac{\pi}{2 l}. \cot.\left(\frac{1}{2}\pi.\frac{y}{l}\right).}{M + \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right). I. A^1.} \qquad (15)$$

Before the value of A^1 can be employed, it will be necessary to find $\cos\theta$, and $\sin\theta$, in functions of y. For this purpose we have

$$\left.\begin{aligned} \sin\theta &= \frac{\rho. d\Psi}{\sqrt{\rho^2 d\Psi^2 + dy^2}} = \frac{1}{\sqrt{1 + \frac{dy^2}{\rho^2. d\Psi^2}}} = \frac{\frac{\pi^2}{n. l}. \rho. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right)}{\sqrt{1 + \frac{\pi^4}{n^2 l^2}. \rho^2. \sin^2\left(\frac{1}{2}\pi.\frac{y}{l}\right)}}; \\ \cos\theta &= \frac{dy}{\sqrt{\rho^2 d\Psi^2 + dy^2}} = \frac{1}{\sqrt{1 + \frac{\rho^2. d\Psi^2}{dy^2}}} = \frac{1}{\sqrt{1 + \frac{\pi^4}{n^2. l^2}. \rho^2. \sin^2\left(\frac{1}{2}\pi.\frac{y}{l}\right)}}. \end{aligned}\right\} \qquad (16)$$

which substituted in the value for A^1, a will disappear, and give

$$A^1 = \frac{f + \rho. \frac{\pi^2}{n l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right.}{\rho\left(1 - f. \rho. \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right)\right)}$$

and making $A = A^1\rho$, the formula will stand

$$A = \frac{f + \rho. \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right)}{1 - f. \rho. \frac{\pi^2}{n. l}. \sin\left(\frac{1}{2}\pi.\frac{y}{l}\right)} \qquad (17)$$

$$P - M\frac{d^2 y}{dt^2} = I.\,A.\,\frac{\pi^2}{n.\,l.\,\rho}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right).\,\frac{P + M.\,V^2\,\frac{\pi}{2\,l}.\,\cot.\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}{M + I.\,A.\,\frac{\pi^2}{n.\,l.\,\rho}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)} \tag{18}$$

$$\frac{I}{\rho}.\,\frac{d^2\,\psi}{dt^2} = \frac{I}{\rho}.\,\frac{\pi^2}{n.\,l}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right).\,\frac{P + M.\,V^2.\,\frac{\pi}{2\,l}.\,\cot.\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}{M + I.\,A.\,\frac{\pi^2}{n.\,l.\,\rho}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}. \tag{19}$$

(8)—If p_1 denote the pressure of the gas on one square foot of surface, then

$$P = p_1.\,\pi.\,\rho^2. \tag{20}$$

and denoting the weight of the projectile, in pounds, by W, and the principal radius of gyration of the missile in reference to the axis of rotation by k_1, then will

$$I = \frac{W}{g}\,k_1^2. \quad ; \quad M = \frac{W}{g} \tag{21}$$

and Eqs. (18) and (19) become

$$P - M.\,\frac{d^2\,y}{dt^2} = A.\,\frac{\pi^2.\,k_1^2}{\rho.\,n.\,l.\,g}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right).\,\frac{p_1.\,g.\,\pi.\,\rho^2 + W.\,V^2.\,\frac{\pi}{2\,l}.\,\cot.\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}{1 + A.\,k_1^2.\,\frac{\pi^2}{n.\,l.\,\rho}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}. \tag{22}$$

$$\frac{I}{\rho}.\,\frac{d^2\,\psi}{dt^2} = \frac{\pi^2.\,k_1^2.}{\rho.\,n.\,l.\,g.}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right).\,\frac{p_1.\,g.\,\pi.\,\rho^2 + W.\,V^2.\,\frac{\pi}{2\,l}.\,\cot.\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)}{1 + A.\,k_1^2.\,\frac{\pi^2}{n.\,l.\,\rho}.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{y}{l}\right)} \tag{23}$$

(9)—Denote by C the strain in direction of circumference of the bore, then

$$C = p_1.\,2\,\rho.\,(y + c) \tag{24}$$

in which c is the distance from the bottom of the bore to the beginning of the groove.

At the mouth of the gun, $y = l$, and the working formulas become

$$A = \frac{f + \rho.\,\frac{\pi^2}{n.\,l}}{1 - f.\,\rho.\,\frac{\pi^2}{n.\,l}} \tag{25}$$

$$P - M.\,\frac{d^2\,y}{dt^2} = A.\,\frac{\pi^2.\,k_1^2}{n.\,l.}.\,\frac{p_1.\,\pi.\,\rho.}{1 + A.\,\frac{\pi^2\,k_1^2}{n.\,\rho.\,l}} \tag{26}$$

$$\frac{I}{\rho}.\,\frac{d^2\,\psi}{dt^2} = \frac{\pi^2\,k_1^2}{n.\,l}.\,\frac{p_1.\,\pi.\,\rho}{1 + A.\,\frac{\pi^2.\,k_1^2}{n.\,\rho.\,l}}. \tag{27}$$

$$C = 2\,p_1.\,\rho\,(l + c) \tag{28}$$

The value of λ^1 being zero, Eq. (10)[1] shows no action to draw the expanding ring of the projectile outward, on the part of the edge of the land.

Equation (24) gives the circumferential, equation (22) the longitudinal, and equation (23)

the torsion strain, all expressed in pounds, and the lever arm of the latter being the radius of the bore. The strength of the gun material will readily suggest the figure and dimensions necessary to resist these strains. The strength of the material should be ascertained by careful experiments, so conducted as to subject cylinders of the metal simultaneously to the three kinds of strain, the intensities of the strains bearing to one another the proportions suggested by the formulas.

(10)—To apply these formulas, it will only be necessary to find, experimentally, the value of p_1, and that of V, for different values of y, and to compute from the known figure and dimensions of the projectile the value of k_1. The values of p_1, corresponding to given values of y, may be found by a modification of RODMAN'S process of plugs. To find V, for the same value of y, let a gun of each of the calibres employed in service, be successively reduced in length, and the initial velocity at each reduction determined by the electro-ballistic pendulum, observing to keep the charges of powder, as well as the projectiles, as nearly alike as possible in the several trials.

(11)—Let us illustrate the mode of computation by applying the formulas to a probable case.

In Major RODMAN'S work, entitled "*Experiments on Metals and Gunpowder*," page 200, it appears that in a 42-pounder, 8 pounds of powder behind a solid shot and sabot gave a pressure of the gas on a square inch, at 14 inches from the bottom of the bore, equal to 46,100 pounds; at 28 inches 12,200; at 42 inches 5,500; at 56 inches 5,350; at 70 inches 4,970, and at 84 inches 5,700; showing a pretty rapid decrease after the projectile begins to move, and from which it may be assumed that the missile acquires half its initial or maximum velocity at about one third the distance from the starting point to the mouth of the piece.

In a little pamphlet by Mr. PARROTT, entitled "*Ranges of Parrott Guns and Notes for Practice*," we find, at page 9, that with 10 pounds of powder, a shell, of which the weight was 101 pounds, was projected from his 100-pounder with an initial velocity of 1,250 feet; and at page 10, that the same charge of powder, in same gun, gave, with an 80 pound missile, a pressure, according to the plug process, of 81,000 pounds to the square inch. It is assumed that the pressure behind the 101-pound shell was not less than this, and that this pressure occurred soon after the projectile began to move. Then, assuming, according to the suggestions of RODMAN'S experiments, that this pressure was reduced to one-third at one-third the distance from the point of the projectile's departure to the mouth of the gun, and taking the dimensions of the 100-pounder from the pamphlet, page 19, the data for computation will stand:

$$\overset{f}{\rho} = 0.266 \qquad p_1 = \tfrac{1}{3} \times 81000 \times 144 = 3888000.$$

$$l = 10.833 \qquad \tfrac{1}{2}\pi . \frac{y}{l} = 90^\circ \times \tfrac{1}{3} = 30^\circ$$

$$n = 3.5 \qquad V = 625$$

$$k_1^2 = 0.035378 \qquad c = 1$$

$g = 32$ $\quad$ $y = 3.61$

$\pi = 3.1416$ $\quad$ $f = 0.217$ friction between brass and cast iron.

$W = 101.$

	Nos	Logs		Logs
Eq. (24)				
$p_1 =$	3888000;	6.5897263		
$2\rho =$	0.532	9.7259116		
$y + c =$	4.611	0.6637951		
C =	9537457 lbs	6.9794330		
Eq. (17)				
$\rho =$	0.266	9 4248816		9.4248816
$\pi^2 =$	$(3.1416)^2$	0.4971509×2		0.9943018
$n =$	3.5	0.5440680	*a c*	9.4559320
$l =$	10.833	1.0347487	*a c*	8.9652513
$\rho . \frac{\pi^2}{n . l}$	0.06924			8.8403667
$\sin\left(\frac{1}{2}\pi . \frac{y}{l}\right) = \sin 30^\circ$				9.6989700
$\rho . \frac{\pi^2}{n . l} . \sin\left(\frac{1}{2}\pi . \frac{y}{l}\right)$	0.03462			8.5393367
$f =$	0 217			9.3364597
$f . \rho . \frac{\pi^2}{n . l} . \sin\left(\frac{1}{2}\pi . \frac{y}{l}\right)$	0.00751			7.8757964
$0.217 + 0.03462$	0.25162			9.4007452
$1 - 0.00751$	0.99249		*a c*	0.0032739
A	0.2535			9.4040191
Eq. (23)				
W	101			2.0043213
V^2	$(625)^2$	$2\ 7958800 \times 2$		5.5917600
π	3.1416			0.4971509
$\cot . \frac{1}{2}\pi . \frac{y}{l} =$	cot. 30°			0.2385606
$2l$	21.666		*a c*	8.664210
$W . V^2 . \frac{\pi}{2l} . \cot . \left(\frac{1}{2}\pi . \frac{y}{l}\right)$	9908341			6.9960138

$p_1 =$	3888000			6 5897263
$g =$	32			1.5051500
$\pi =$	3.1416			0.4971509
$\rho^2 =$	$(0.266)^2$	9.4248816 × 2		8.8497632
$p_1 . g . \pi . \rho^2$	2765610			7.4417904
$W . V^2 . \frac{\pi}{2l} . \cot . \frac{1}{2} \pi . \frac{y}{l}$	9908341			
$p_1 . g . \pi . \rho^2 + W . V^2 . \frac{\pi}{2l} \cot . 30^\circ =$	12673951			
$A =$	0.2535			9.4040191
k_1^2	0.035378			8.5487333
π^2	$(3.1416)^2$	0.4971509 × 2		0.9943018
sin 30°				9.6989700
n	3.5	0.5440680	*a c*	9.4459320
l	10.833	1.0347487	*a c*	8.9652513
ρ	0.266	9.4248816	*a c*	0.5751184
	0.004389			7.6423259
	1			
$1 + A . k_1^2 . \frac{\pi^2}{n . l . \rho} . \sin 30^\circ$	1.004389		*a c*	9.9980985
$p_1 g . \pi . \rho^2 + W . V^2 . \frac{\pi}{2l} . \cot . 30^\circ$	12673951			7.1029121
sin 30°				9.6989700
k_1^2				8.5487333
π^2				0 9943018
ρ			*a c*	0.5751184
n			*a c*	9.4559320
l			*a c*	8.9652513
g			*a c*	8.4948500
$\frac{I}{\rho} . \frac{d^2 \psi}{dt^2}$		6841,7 lbs		3.8351674
A				9.4040191
$P - M . \frac{d^2 y}{dt^2}$		1734,5 lbs		3.2391865

(12)—Let us now compute the strains when the missile has reached the mouth of the gun. For this purpose Eqs. (25), (26), (27), and (28) are applicable.

Eq. (25)

$f+\rho.\frac{\pi^2}{n.l}=0.217+0.0676=0.2846$			9.4542349
$1-f.\rho.\frac{\pi^2}{n.l}=1.000-0.0147=0.9853$		a c	0.0064315
$A=$	0.28884		9.4606664

Eq. (27)

A			9.4606664
π^2			0.9943018
k_1^2			8.5487333
n		a c	9.4559320
l		a c	8 9652513
ρ		a c	0.5751184
$A.\frac{\pi^2 k_1^2}{n.l.\rho}=$	0.01		8.0000032
$1+0.01=$	1.01	a c	9.9956786
ρ			9.4248816
π			0.4971509
$p_1=\frac{1}{8}\times 81000\times 144=1458000$			6.1637575
k_1^2			8.5487333
π^2			0.9943018
n		a c	9.4559320
l	10.833	a c	8.9652513
$\frac{I}{\rho}.\frac{d^2\varphi}{dt^2}$	11110 lbs		4.0456870
	A		9.4606664
$P-M.\frac{d^2y}{dt^2}$	3208,9 lbs		3.5063534

Eq. (28)

2			0.3010300
p_1			6.1637575
ρ			9.4248816
$(l+c)=10.833$			1.0347487
$C=$	8422050 lbs		6.9254178

(13)—Next, compute the effective work the torsion strain performed on the projectile during the passage of the latter to the mouth of the piece. For this purpose we have Eq. (5), making $y=l$.

$$\frac{I}{2}\left(\frac{d\varphi}{dt}\right)^2=\frac{W}{2g}.k_1^2.\frac{\pi^4}{n^2 l^2}.V^2.$$

$V^2=(1250)^2$	3.0969100×2		6.1938200
$\pi^4=(3.1416)^4$			1.9886036
k_1^2			8.5487333
$W=100$			2.0000000
$2\,g=64$		$a\,c$	8.1938200
$n^2=(3,5)^2$		$a\,c$	8.9118640
$l^2=(10,833)^2$		$a\,c$	7.9305026
$\frac{I}{2}\cdot\left(\frac{d\,\psi}{dt}\right)^2$	$5852^{\text{fp}},5$		3.7673435

The work of the torsion strain will be that required to raise 5852,5 pounds through a vertical distance of one foot in the time required for the projectile to pass from rest to the mouth of the gun.

(14)—To compute the work in the missile, due to its motion of translation, we have

$W=100$ lbs			2.0000000
$g=32$		$a\,c$	8.4948500
$2=2$		$a\,c$	9.6989700
$V^2=(1250)^2$			6.1938200
$\frac{MV^2}{2}=\frac{W}{2g}\cdot V^2$	2441406^{fp}		6.3876400

(15)—The torsion strain at mouth,	or $T=11110$		log	4.0456870
Circumferential	or $C=8422050$		$a\,c$	3.0745822
$\frac{T}{C}$		0,001319		7.1202692

So that the strain which twists the gun is but a little more than one one-thousandth part of that which acts to split it.

And again,

Longitudinal strain,	or $L=3208,9$		log	3.5063534
Circumferential	or $C=8422050$		$a\,c$	3.0745822
$\frac{L}{C}=$		0,000381		6.5809356

and the longitudinal strain is not quite four ten-thousandths that which acts to split.

(16)—To integrate Eqs. (18) and (19) it will be necessary to have the law of continuity that connects the different values of p_1, which is, as we have seen from Major RODMAN's experiments, variable. The integral function would enable us to find the actual work performed by the torsion and longitudinal strains during the motion of the missile within the gun. The work performed by the expansive action of the gas against the base of the projectile would also result from the integration of the expression

$$\pi.\,\rho^2.\,p_1.\,dy=\pi.\,\rho^2.\,F\,(y)\,dy.$$

in which

$$p_1 = F(y);$$

and we should have all the data to ascertain with certainty whether the results, as regards intensity of action, furnished by the plug experiments of Major RODMAN, are true estimates of the expansive energy of the gas within the gun. Unfortunately, the experiments thus far have not been sufficiently numerous nor conducted in a way to evolve this desirable law. Nor will its precise mathematical expression be matter of easy attainment, since so much depends, not only upon the devices of the experiments, but also upon the nature and character of the powder as regards the proportions of its chemical ingredients, the size and compactness of its grains, and the mode of manufacture.

(16)—But we are not without the means of a fair proximate test of Major RODMAN'S results. Take at random any one set of them, say the first, on page 196, as given by a 42-pounder, smooth bore, with a cylindrical missile, of which the weight was 75.44 pounds, the charge of powder being 5.13 pounds, viz:

	Pressure in pounds at different distances from bottom of the bore on square inch.						
	At bottom	14 in. $= 1^f,1666$	28 in. $= 2^f,3333$	42 in. $= 3^f,5000$	56 in. $= 4^f,6666$	70 in. $= 5^f,8333$	84 in. $= 7^f,0000$
Initial velocity 904 feet.	36420 lbs.	15850	8370	6470	6850	8050	6720

In the Ordnance Manual, page 18, we find the diameter of the bore to be 7 inches $= 0^f,5833$; the length of the bore 110 inches $= 9^f,1666$; and, at page 288, the length of the cartridge for each pound of powder 0,98 inch. The length of the cartridge will be $5,13 \times 0,98 = 5,0274$ inches $= 0,419$ feet; and the path over which the gas worked on the projectile $9^f,1666 - 0,419 = 8^f,7476$. The table gives the intensities of this action at the beginning, then at a point whose distance from it is $1,1666 - 0,419 = 0,7476$, and then at equal intervals of 1,1666 of a foot to the distance 7 feet. At the mouth of the piece it will be assumed that the pressure is 6000, suggested by the apparent law of decrease. The work, denoted by Q, will come from

$$Q = \pi.\ \rho^2\ 144 \left\{ \begin{array}{l} \dfrac{36420 + 15850}{2} \times 0,7476 \\ + \left(\dfrac{15850 + 6720}{2} + 8370 + 6470 + 6850 + 8050 \right) \times 1,1666 \\ + \dfrac{6720 + 6000}{2} \times 1,7476 \end{array} \right.$$

in which

$$\rho = \frac{0,5833}{2} = 0^f,2916;$$

whence

$$Q = \pi.\ \rho^2\ 144 \{ 26135 \times 0,7476 \times 41025 \times 1,16666 + 6360 \times 1,7476 \}$$

26135	4.4172225	
0,7476	9 8736693	
	4.2908918	19538
41025	4.6130486	
1,16666	0.0669220	
	4.6799706	47860
6360	3.8034571	
1,7476	0.2424420	
	4.0458991	11115
	4.8949416	78513
144	2.1583625	
$\rho^2 = (0.2916)^2$	8.9295750	
π	0.4971509	
$Q = 3020160^{fp}$	6.4800300	

Next, estimate the work with which the missile and gas leave the gun. Denote this by Q′; then

$$Q' = \frac{MV^2}{2} = \frac{W}{2g} . V^2.$$

in which

$$W = 75,44 + 5,13 = 80,57$$

$V^2 = (904)^2$		5.9123368
$W = 80,57$		1.9061734
$2g = 64$	*a c*	8.1938200
Q′ 1028790^{fp},		6.0123302

Then the work of friction between the projectile and gun. Call this Q″,

$$Q'' = f . W . l$$

in which

$f = 0,138$; $W = 75,44$; $l = 9,1666 - 0,419 = 8,7476$

$f = 0,138$	9.1398791
$W = 75,44$	1.8776017
$l = 8,7476$	0.9418889
Q″ $91,^{fp}068$	1.9593697

Next, compute the work of the atmospheric resistance. For this purpose take the formula of Piobert for spherical projectiles, viz:

$$R = A.\,\pi.\,\rho^2.\left(V^2 + \frac{V^3}{V_1}\right)$$

in which A is the resistance, in pounds, on a square foot of cross section of the projectile for a velocity equal to one foot a second; V_1 the velocity which would make the two terms of the binomial factor equal to one another; and R the entire atmospheric resistance. For spherical balls, $A = 0{,}000514$; and for pointed missiles one-third less, or

$$A = 0{,}000342$$

and

$$V_1 = 1427 \text{ feet.}$$

While the actual velocity of the projectile increases rapidly from the point of starting to the mouth of the piece, the decrease in the elastic pressure shows a diminution in the acceleration. The law which connects the actual velocity of the missile with its distance from the point of starting may, with reasonable approximation to the truth, be assumed to be that which connects the ordinate of a parabola of suitable parameter with its corresponding abscissa, the curve being referred to its vertex and axis. This would give

$$V^2 = 2\,p\,y;$$

at the mouth of piece $y = l$; and $V = \mathrm{V} =$ initial velocity. Whence

$$\mathrm{V}^2 = 2\,p.\,l,$$

or

$$2\,p = \frac{\mathrm{V}^2}{l};$$

which substituted above gives

$$V = \sqrt{\frac{\mathrm{V}^2}{l}.\,y}.$$

This substituted in Piobert's formula gives

$$R = A.\,\pi.\,\rho^2.\left(\mathrm{V}^2.\,\frac{y}{l} + \frac{\mathrm{V}^3}{V_1}.\,\frac{y^{\frac{3}{2}}}{l^{\frac{3}{2}}}\right)$$

whence, denoting the work of the atmospheric resistance by Q''',

$$Q''' = \int R\,dy = \int_{y=l}^{y=0} A.\,\pi.\,\rho^2.\left(\mathrm{V}^2.\,\frac{y\,dy}{l} + \frac{\mathrm{V}^3}{V_1}.\,\frac{y^{\frac{3}{2}}\,dy}{l^{\frac{3}{2}}}\right)$$

or

$$Q''' = A.\,\pi.\,\rho^2.\,l.\,\mathrm{V}^2.\left(\tfrac{1}{2} + \tfrac{2}{5}.\,\frac{\mathrm{V}}{V_1}\right)$$

$\mathrm{V} = 904$		2.9561684
$V_1 = 1427$	*a c*	6.8455760
2		0 3010300
5	*a c*	9.3010300
0.2534		9 4038044
0.5000		
0.7534		

0.7534		9.8770256		
$V^2=(904)^2$		5.9123368		
$l=8.7476$		0.9418889		
$\rho^2=(0.2916)^2$		8.9295750		
$\pi=(3,1416)$		0.4971509		
$A=0,000342$		6.5340261		
$Q'''=492,^{\text{fp}}05$		2.6920033		$492.^{\text{fp}}05$
Q''				91.07
Q'				1028790.00
$Q'+Q''+Q'''$	*a c*	3.9874272	*a c*	$1029373.^{\text{fp}}12$
Q		6.4800300		
$\dfrac{Q}{Q'+Q''+Q'''}=2.934$		0.4674572		

Thus showing the work performed by the forces indicated by the plug experiments to be nearly three times as great as that with which the missile leaves the gun, augmented by the work of friction and of atmospheric resistance.

Taking one-third of the circumferential, longitudinal, and torsion strains, as they existed at the instant the missile left the piece, in the example of the 100-pounder, these strains will stand—

$$C=2807350 \text{ lbs}$$
$$T=\quad 3703.3$$
$$L=\quad 1069.6$$

giving the same ratios as before, and from which it is obvious that the failure of rifled guns, with the Parrott twist, must be sought in some cause other than the superaddition of the pulling and twisting strains to that which acts to split the piece; and, so far as the principles of rifling are concerned, this gun may be made as safe as the common smooth-bore.

(17)—The values of C, T, and L, will vary with the character of the twist. An increasing twist which develops into the arc of a circle, tangent to a rectilinear element of the bore at the bottom of the piece, is suggested in Captain Benton's book on ordnance and gunnery; and the uniform twist is in common use. The equation of the first is

$$y^2=2\,ax-x^2; \qquad x=\rho.\,\Psi$$

whence

$$\left.\begin{array}{c} L=y^2-2\,a.\,\rho.\,\Psi+\rho^2.\,\Psi^2=0 \\ \rho=\text{constant} \end{array}\right\} \qquad (4)'$$

in which a is the radius of the circle. Making $y=l$, and $\Psi=\frac{2\,\pi}{n}$, we have

$$a=\frac{l^2+\rho^2.\,\frac{4\,\pi^2}{n^2}}{4\,\rho.\,\frac{\pi}{n}} \qquad (29)$$

(18)—The Equation of the second or uniform twist is

$$y = ax; \qquad x = \rho\,\Psi.$$

whence

$$\left.\begin{array}{l} L = y - a.\,\rho.\,\Psi = 0 \\ \rho = \text{constant} \end{array}\right\} \qquad (4)''$$

in which a is the cotangent of the angle which an element of the helix makes with the axis of the piece. Making $y = l$,

$$a = \frac{n.\,l}{2\,\pi} \qquad (30)$$

Equations (4)′ and (4)″ treated after the manner of Eq. (4) and combined with Eqs. (A), will give new values for T and L.

(19)—But why are the indications of the plug, in excess of the pressure measures? Let us see. The circumstances of the experiments are these, viz: A hole is made in the barrel of the gun, in the direction of a line intersecting at right angles the axis. In this hole is inserted a plug, tight enough to permit freedom of motion and yet prevent the sensible escape of gas. The outer end of the plug terminates in an obtuse lanceolate cutter. In contact with the point of this cutter is firmly secured a piece of thick copper plate, with its plane face at right angles to the axis of the plug. When the gun is fired the expanding gas acts upon the head of the plug and drives it into the plate, and the intensity of the action is inferred to be measured by a dead weight which, by its simple pressure and without sensible motion, will produce an equal cut.

Denote by x the distance the cutter has penetrated the copper; by $F_1(x)$ the corresponding pressure of the expanding gas on the end of the plug, in pounds; by $F_2(x)$ the corresponding resistance of the copper; by W the weight of the plug and cutter, and by V their common velocity; then will

$$\int F_1(x)\,dx - \int F_2(x)\,dx - \frac{W}{2\,g}.\,V^2 = 0.$$

The value of $F_1(x)$ begins with zero and when x is zero; it rapidly increases to a maximum, and then rapidly diminishes as the missile progresses and x increases. The function denoted by F_1 must have a maximum. Such a function is

$$F_1(x) = A.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{x}{a}\right);$$

in which A denotes the maximum elastic force; a the value of x or copper penetration when it occurs. And although this may not be the precise function which expresses the law in question, it will be sufficient for the purposes of the illustration.

Let the law of copper resistance be

$$F_2(x) = B\,x^m,$$

and the work becomes

$$\int A.\,\sin\left(\tfrac{1}{2}\,\pi.\,\frac{x}{a}\right).\,dx - \int B\,x^m\,dx - \frac{W}{2\,g}.\,V^2 = 0;$$

or

$$A.\,\frac{2\,a}{\pi}\left[1 - \cos\left(\tfrac{1}{2}\,\pi.\,\frac{x}{a}\right)\right] - B\,x^m.\,\frac{x}{m+1} - \frac{W}{2\,g}.\,V^2 = 0.$$

At the instant the plug stops, $V=0$; and

$$A = B\,x^m.\frac{\pi}{a}.\frac{x}{2\,(m+1)}.\frac{1}{1-\cos\left(\frac{1}{2}\,\pi.\frac{x}{a}\right)}.$$

or

$$\frac{A}{B\,x^m} = \frac{\pi}{a}.\frac{x}{2\,(m+1)}.\frac{1}{1-\cos\left(\frac{1}{2}\,\pi.\frac{x}{a}\right)}.$$

The first member is the ratio of the maximum elastic force of the gas to the copper resistance at the instant the plug stops, or at the instant of greatest penetration; and it is apparent that we can neither take the first member equal to unity nor $x=a$, since x has already been taken to satisfy the condition of $V=0$. The penetration or width of the cut cannot, therefore, indicate, directly, the maximum gas pressure.

If we make $m=1$, that is, the copper resistance proportional to the plug penetration, then will

$$\frac{A}{B^x} = \frac{\pi}{4}.\frac{x}{a}.\frac{1}{1-\cos\left(\frac{1}{2}\,\pi.\frac{x}{a}\right)}.$$

still indicating the same difficulty.

It seems to have been taken for granted, in Major RODMAN'S experiments, that the gas pressure is constant during the time the cutter is making its way to the stopping point. This certainly cannot be true; but if it were, then would

$$\int A\,dx - \int B\,x^m\,dx - \frac{W}{2\,g}.\,V^2 = 0;$$

or

$$A\,x - \frac{B}{m+1}x^{m+1} - \frac{W}{2\,g}.\,V^2 = 0;$$

and the instant the plug stops, $V=0$, and

$$(m+1)\,A - B\,x^m = 0$$

or

$$x = \sqrt[m]{(m+1)\,\frac{A}{B}}.$$

and making $m=1$, which supposes the resistance to vary directly as the penetration,

$$x = 2\,\frac{A}{B}$$

or

$$B\,x = 2\,A.$$

That is, the resistance of the copper at the stopping point of the cutter is twice the pressure of the gas.

(20)—Major RODMAN seems not to have recalled the distinction between the measure for *intensity* and that for its *work*. The real difficulty lies in our ignorance of the laws which connect the intensity of copper resistance and of gas elasticity with the plug penetration. If these

laws were accurately known, it would be easy to find the maximum of gas pressure, by the RODMAN process, from the known depth of plug penetration and the resistance due to the unit of penetration. In the absence of these laws, it would be better to modify the experiments by inserting a number of plugs around the circumference of the same cross section of the gun, made at different distances from the mouth, and keep the plugs in their places by suitable *dynamometers* strained to different degrees; and after firing, find that plug which has made but a faint indentation on the copper. The indication of the *dynamometer* on this plug would be the measure of the maximum elastic force of the gas.

(21)—These objections to Major RODMAN'S results are made in no spirit of criticism; they are unavoidable, and belong to the discussion which was proposed at the outset. The labors of that distinguished officer have been beset with difficulties, and, considering the range and nature of his experimental researches, it would be matter of surprise if he had made no mistakes. The spirit of professional improvement which seems to have animated him from his entrance into the ordnance corps, has given the country much valuable information, and to find fault with it because it is not all that could be desired, would be unreasonable and unjust.

(22)—Let us next find the number of turns the projectile makes in a second of time, on leaving the piece. For this end, take Eq. (7).

π		0.4971509
V		3.0969100
2	*a c*	9.6989700
n	*a c*	9.4559320
l	*a c*	8.9652513
$\nu = 51.8$		1.7142142

(23)—The radius, denoted by ρ_1, of the interior surface of the shell, is $0,266-0,094$, equal to 0,172 of a foot; and the actual rotary velocity, denoted by V_1, of this surface around its axis, is given by

$$V_1 = 2\ \pi .\ \rho^1 .\ \nu .$$

2	0.3010300
π	0.4971509
ρ^1	9.2355284
ν	1.7142142
$V_1 = 55^f.9$	1.7479235

That is, on leaving the piece, the velocity of rotation of the interior surface of the shell is nearly fifty-six feet; half of which would be sufficient to ignite a wooden or heat to redness an iron axle, if rubbed under moderate pressure by the turning shell without a lubricant; and it is not necessary to attribute the frequent explosions of rifle shells within the gun to any other cause. The powder thrown by centrifugal action against the inner rough surface of the shell before it has taken the rotary motion of the latter, would be subjected to friction enough to explode it. Here is a real source of failure with rifled guns.

Again, in the PARROTT missile, the sudden rotation is produced by a force of torsion applied at one end; it is resisted by the inertia of the projectile which it develops, and to which it is equal. At the mouth of the piece, in the case of the 100-pounder, that resistance is equal to about thirty-six hundred pounds. If the shell had an incipient defect, this strain would not fail to develop it, and probably open an avenue for the inflamed gas to enter.

Taking the velocity of the projectile at one-third the distance from its starting point to the mouth to be equal to half its initial velocity, and denoting the radius of the inner surface of the shell by ρ^1, we shall have for the velocity of rotations of this surface, by making $y = \frac{1}{3} l$, Eq. (5),

$$V_1 = \rho^1 . \frac{d\Psi}{dt} = \rho^1 . \frac{\pi^2}{n\ l} \times \frac{1250}{2} \times \sin \tfrac{1}{6}\pi;$$

whence,

$\rho^1 = 0.172$		9.2355284
$\pi^2 = (3{,}1416)^2$		0.9943018
$V = 625$		2.7958800
$\text{Sin } \frac{1}{6}\pi = \sin 30^\circ$		9.6989700
$n = 3{,}5$	*a c*	9.4559320
$l = 10{,}833$	*a c*	8.9652513
$V_1 = 13^f.99$		1.1458635

Giving at this point a rotary velocity of about fourteen feet a second.

It is understood to be the habit of Mr. PARROTT, latterly, to coat the interior of all his shells with a mastic, which presents a very smooth and yielding surface. This has the effect to lessen the friction, close any very fine apertures arising from imperfect casting, and to diminish greatly the chances of explosion, if it do not wholly remove them.

There is, however, another source of premature explosion from excess of mechanical action. Every sudden compression is attended by development of heat, and there can be no doubt this may be sufficient in degree to explode powder. Can it, in any case of practice, be enough to fire the exploding charge of the shell? A knowledge of the law which connects the velocity of the projectile with the distance of the latter from its starting point would enable us, by the aid of the equation next preceding that numbered (14), to find the pressure upon the powder of the shell at any point within the gun, and therefore the maximum pressure. But, as before remarked, this law is unknown. It is easy, however, to find the average pressure in any case, from the initial velocity.

Denote the weight of the exploding charge of the shell, in pounds, by W; the initial velocity by V; the length of the projectile's path in the gun by l, and the average pressure upon the powder by p; then will

$$2\,p = \frac{W}{g} . \frac{V^2}{l} .$$

For the 100-pounder,

$$W = 5$$
$$V = 1250$$
$$l = 10{,}833$$
$$g = 32;$$

whence

W		0.6989700
V^2		6.1938200
l	a c	8.9652513
g	a c	8.4948500
$2p = 22537$ lbs		4.3528913

or

$p = 11268.5$ lbs., over five and a half tons,

which, being an average, is much below the maximum. It is the pressure upon that layer of powder in contact with the bottom of the shell. The inner diameter of the shell is about three-tenths of a foot, and the area over which the pressure is exerted is, therefore, about seven-hundredths of a square foot. The pressure is found to be sufficient to destroy all granulation and to reduce the powder to a compact indurated mass at the bottom of the shell hard enough to resist all effort by the finger-nail to impress it. Of course, in all this there is much friction among the particles of the powder, and great condensation of air at the base of the projectile's cavity.

The pressure is greater in proportion as the bursting charge is greater and the area of the cross section of the shell's cavity is less. It is found that the explosions within the gun are much more frequent for larger than smaller charging. Fuze charges—that is, charges just sufficient to blow out the fuze plug without breaking the shell—are rarely attended with internal explosions.

PART II.

MATERIALS AND DIMENSIONS OF GUNS.

(1)—It has been shown that the principle of *rifling* is, of itself, no sufficient cause of the disasters which have characterized some of our artillery practice, and that if these disasters did not wholly arise from sheer carelessness, as many doubtless did, the source of trouble must be sought outside of the mere fact of rifling.

(2)—It does not appear that the propagation of molecular disturbance, by which alone the forces of resistance to the expanding action of gases are developed and brought into action, has ever been duly considered in the choice of the material and adjustment of the dimensions of guns, and yet it is of all considerations the most important.

In the preceding pages an attempt has been made to construct a set of formulæ by which to compute the strains upon rifled guns. It is now proposed to indicate the influence which the rate of molecular disturbance has upon the capacity of a gun to resist the more important of these strains, called the *circumferential.*

(3)—It is well known that the velocity of molecular disturbance is in nowise dependent upon the intensity of the initial forces which produce it, but results wholly from peculiarity of molecular structure that determines *elasticity* and *density*. This velocity is always the same in the same body; and a body to preserve its identity, in this connexion, must preserve its temperature and the external pressure upon it unchanged. The material of a gun after

repeated firing, by which it becomes heated and thrown into a new *set*, is not the same as before the firing began.

(4)—It is by the propagation of molecular disturbance that the forces of resistance are developed and brought into action, and the rate of this propagation is measured by the velocity of sound in the gun material.

(5)—When powder is burned behind a projectile, the first action of the expanding gas is to enlarge the bore and compress the metal in the direction of the radius, and this action may be so intense and sudden as to break up the molecular structure within, before the outer portion can come to its support, and tear the gun as an ordinary force would a piece of cloth applied to its edge. This would be the case, for instance, with an active fulminate, in which the limits of stable equilibrium of the chemical forces are very narrow.

(6)—Take the following notation, viz:

$M =$ Modulus of the gun's material.
$p =$ Pressure of the gas on unit of surface.
$\rho =$ Radius of bore.
$c =$ Thickness of gun.
$l =$ Length of bore on which p is exerted.
$V =$ Velocity of sound in the gun material.
$t =$ Time since the beginning of the explosion to the instant of greatest action.
$Q_r =$ Quantity of work of gun resistance.
$Q_p =$ Quantity of work of the expanding gas on gun.

(7)—Take the axis of the gun for the axis of y; a line at right angles thereto for that of x.

The circumference of the bore before firing will be

$$2\,\pi.\,\rho;$$

and at any time after the explosion begins

$$2\,\pi\,(\rho + \delta\rho)$$

in which $\delta\rho$ is the increase of ρ. And the expansion of the circumference will be

$$2\,\pi\,(\rho + \delta\rho) - 2\,\pi\,\rho = 2\,\pi.\,\delta\rho$$

and on a unit of length

$$\frac{2\,\pi\,\delta\rho}{2\,\pi\,\rho} = \frac{\delta\rho}{\rho}$$

Conceive a circular ring of radius x, and of which the plane is perpendicular to the gun's axis, and let the area of a section of this ring, by a plane through the axis, be $dx.\ dy$.

When the circumference of the bore is expanded by $2\,\pi\,\delta\rho$, that of this ring will be $2\,\pi.\,\delta x$; and on a unit of length

$$\frac{2\,\pi.\,\delta x}{2\,\pi x} = \frac{\delta x}{x}.$$

By the principles of wave propagation,

$$\frac{\delta x}{x} = \frac{\delta\rho}{\rho}.\ \sin\left(\tfrac{1}{2}\,\pi\,\frac{Vt + \rho - x}{Vt}\right). \qquad (1)$$

with the condition that,

$$Vt+\rho > x, \tag{2}$$

without which the disturbance will not move fast enough to develop resistance by the time it is needed.

The molecular resistance on a unit of surface, supposing every element of the unit to exert a resistance equal to that on $dx.\ dy$, will be

$$M.\ \frac{\delta x}{x}.$$

and on the element $dx.\ dy$,

$$M.\ \frac{\delta x}{x}.\ dx.\ dy.$$

The elementary quantity of work of this resistance, on a unit of length of the ring, will be

$$M.\ \frac{\delta x}{x}.\ d\,\frac{\delta x}{x}.\ dx.\ dy.$$

which integrated between the limits $\frac{\delta x}{x}=0$ and $\frac{\delta x}{x}=\frac{\delta x}{x}$, will give the work of resistance in a unit of length of the ring. This integration gives

$$\tfrac{1}{2}\ M.\left(\frac{\delta x}{x}\right)^2.\ dx.\ dy.$$

and in the entire ring

$$2\ \pi\ x.\ \tfrac{1}{2}\ M.\ \frac{\delta x^2}{x^2}.\ dx.\ dy.=\pi.\ M.\ \frac{\delta x^2}{x^2}.\ xdx.\ dy.$$

Replacing $\frac{\delta x}{x}$ by its value in the wave function (1), and indicating the integration within the limits of l and c, we get

$$Q_r=\int_{y=l}^{y=0}\int_{x=\rho+c}^{x=\rho}\pi.\ M.\ \frac{\delta\rho^2}{\rho^2}.\ dy.\ \sin^2\left(\tfrac{1}{2}\ \pi\ \frac{Vt+\rho-x}{Vt}\right)\ xdx.$$

or

$$Q_r=\pi.\ M.\ \frac{\delta\rho^2}{\rho^2}.\ l.\left[\tfrac{1}{4}\ (\rho+c)^2-\tfrac{1}{4}\ \rho^2+\tfrac{1}{2}\ (\rho+c).\ \frac{Vt}{\pi}.\ \sin\left(\pi.\ \frac{c}{Vt}\right)-\left(\frac{Vt}{\pi}\right)^2.\ \sin^2\left(\tfrac{1}{2}\ \pi\ \frac{c}{Vt}\right)\right]. \tag{3}$$

(8)—In the incipient state of powder inflammation the gas pressure is zero, and this pressure reaches a maximum when the bore is most enlarged. Denoting by p the varying value of the pressure upon a unit of surface; by P its maximum value, and by $(\delta\rho)$ the varying value of $\delta\rho$, we may write

$$p=P.\ \sin\left(\tfrac{1}{2}\ \pi.\ \frac{(\delta\rho)}{\delta\rho}\right).$$

The pressure upon the interior surface of which the length is l is

$$2\ \pi.\ \rho.\ l.\ p=2\ \pi.\ \rho.\ l.\ P.\ \sin\left(\tfrac{1}{2}\ \pi.\ \frac{(\delta\rho)}{\delta\rho}\right).$$

and the work of this pressure from the beginning till the bore has its greatest expansion is

$$Q_p=\int_{(\delta\rho)=\delta\rho}^{(\delta\rho)=0}2\ \pi.\ \rho.\ l.\ P.\ \sin\left(\tfrac{1}{2}\ \pi\ \frac{(\delta\rho)}{\delta\rho}\right)d\ (\delta\rho)=4.\ \rho.\ \delta\rho.\ l.\ P$$

But Q_r and Q_p must be equal. Hence after omitting the common factors and multiplying by ρ, we have

$$M.\frac{\delta\rho}{\rho}\left[\tfrac{1}{4}(\rho+c)^2-\tfrac{1}{4}\rho^2+\tfrac{1}{2}(\rho+c).\frac{Vt}{\pi}.\sin\left(\pi.\frac{c}{Vt}\right)-\left(\frac{Vt}{\pi}\right)^2.\sin^2\left(\tfrac{1}{2}\pi.\frac{c}{Vt}\right)\right]=\frac{4}{\pi}.\rho^2.P \quad (4)$$

(9)—Make φ the variable ratio of the sine to its arc; that is,

$$\varphi=\frac{\sin\left(\pi\frac{c}{Vt}\right)}{\pi.\frac{c}{Vt}} \quad (5)$$

$$\varphi_1^2=\frac{\sin^2\left(\frac{1}{2}\pi.\frac{c}{Vt}\right)}{\left(\frac{1}{2}\pi.\frac{c}{Vt}\right)^2} \quad (6)$$

and we have,

$$M.\frac{\delta\rho}{\rho^2}\left[\tfrac{1}{4}(\rho+c)^2-\tfrac{1}{4}\rho^2+\tfrac{1}{2}(\rho+c)\,c.\,\varphi-\tfrac{1}{4}\varphi_1{}^2c^2\right]=\frac{4}{\pi}.\rho\,P. \quad (7)$$

(10)—The least value possible for φ is zero, and this will occur when

$$\frac{c}{Vt}=1$$

or when the molecular disturbance only reaches the outer surface of the gun at the instant of greatest action on the bore, in which case the outer layer of molecules will afford no aid whatever.

If

$$\frac{c}{Vt}>1$$

then the disturbance would fall short of the outer surface at the instant of greatest action, and all that part of the gun beyond the wave front would be useless.

(11)—The greatest value for φ is unity, and this will happen when the arc is so small that the sine may be taken equal to the arc; that is, when the molecular disturbance moves with great rapidity and the powder burns very slowly.

(12)—The velocity of sound through cast iron is about 18,673 feet a second; and it is stated in Benton's Ordnance and Gunnery, page 48, that a grain of powder of a particular kind, and having a diameter of 0,056 inches, will burn up in 0,056 of a second. Making, therefore,

$$V=18673^f$$
$$t=0{,}056^s$$
$$Vt=1045^f.7$$

we find

$$Vt=1045^f.7$$
$$\frac{\pi}{Vt}=0{,}003.$$

(13)—So that in ordinary practice φ and φ_1 may be taken as equal to unity, and Eq. (7) becomes

$$M.\frac{\delta\rho}{\rho}.\left[c^2+2\,c\,\rho\right]=\frac{8}{\pi}\,P.\,\rho^2 \qquad (8)$$

or

$$M.\frac{\delta\rho}{\rho}=\frac{8}{\pi}.\frac{P.\,\rho^3}{c^2+2\,c\,\rho} \qquad (9)$$

The first member is the tensile strain upon a unit of surface of a section through the axis, each element of the surface having the same strain and equal to that on a cross section of the circular filament in the surface of the bore.

(14)—Solving with respect to P,

$$P.=\frac{\pi}{8}.M.\frac{\delta\rho}{\rho}.\frac{c\,(c+2\,\rho)}{\rho^2} \qquad (10)$$

which gives the internal pressure just sufficient to produce the tensile strain $M.\frac{\delta\rho}{\rho}$.

(15)—Solving with respect to $\delta\rho$, we have

$$\delta\rho=\frac{8}{\pi}.\frac{P}{M}.\frac{\rho^3}{c^2+2\,\rho\,c} \qquad (11)$$

which gives the enlargement of the bore.

(16)—Dividing both members of Eq. (9) by P. there will result,

$$\frac{M.\frac{\delta\rho}{\rho}}{P.}=\frac{8}{\pi}.\frac{\rho^3}{c^2+2\,\rho\,c} \qquad (12)$$

which gives a direct relation between the tension of the gas, as measured by its pressure on unit of surface of the bore, and the tensile strain upon the material of the gun on an equal extent of section through the axis. This for the same gun is constant.

(17)—Solving Eq. (9) with respect to c, we find

$$c=-\rho\left(1\mp\sqrt{1+\frac{8}{\pi}.\frac{P}{M.\frac{\delta\rho}{\rho}}}\right) \qquad (13)$$

This will give the thickness necessary to resist the pressure P, which develops the tensile strain $M\frac{\delta\rho}{\rho}$, the radius of the bore being ρ, and the upper sign being taken to satisfy the inequality (2).

(18)—On the other hand, if the powder be excessively quick, Vt would become comparatively small. Let us, for illustration, suppose it equal to c, which would bring the wave front only to the outer surface of the gun when the gas has its greatest action; then would

$$\varphi=0, \text{ and } \varphi_1{}^2=\frac{4}{\pi^2}$$

and Eq. (7) would become, writing c_1 for c,

$$M.\frac{\delta\rho}{\rho}.\left[\tfrac{1}{4}\,(\rho+c_1)^2-\tfrac{1}{4}\,\rho^2-\frac{1}{\pi^2}.\,c_1{}^2\right]=\frac{4}{\pi}.\,P.\,\rho^2$$

or

$$\mathrm{M}.\frac{\delta\rho}{\rho}.\left[\frac{\pi^2-4}{4\,\pi^2}.\,c_1^2+\tfrac{1}{2}\,\rho\,c_1\right].=\frac{4}{\pi}.\,\mathrm{P}.\,\rho^2.$$

and solving with respect to c_1,

$$c_1=-\frac{\pi^2}{\pi^2-4}.\,\rho.\left[1\pm\sqrt{1+16.\frac{\pi^2-4}{\pi^3}.\frac{\mathrm{P}}{\mathrm{M}.\frac{\delta\rho}{\rho}}}\right] \tag{14}$$

which is much greater than the value for c, as given by Eq. (13), and which shows that a gun having its dimensions properly adjusted to slow powder might fail under the action of one much quicker. Indeed, there can be no doubt that many good guns have been broken by the use of powder rendered unfit for cannon practice by reason of its superior quickness. Quick powder gives no better range, often crushes the projectile in shell firing, and unnecessarily taxes, if it do not destroy, the gun. Its use should be avoided.

The velocity of molecular disturbance increases with an increase of elasticity and diminution of density. Gun metal should, therefore, possess the *greatest elasticity* and *least density* consistent with high tenacity.

(19)—In the report of Major WADE on the metals for cannon, page 269, the tenacity of the Greenwood gun iron is given at 35,538 pounds. This is the value of $\mathrm{M}\,\frac{\delta\rho}{\rho}$ at the breaking point for this quality of iron. Taking the case of the 42-pounder, we shall have

$$\mathrm{M}\,\frac{\delta\rho}{\rho}=35538\text{ lbs}$$
$$\rho=0^{\mathrm{f}}.29166$$
$$c=0^{\mathrm{f}}.70833.$$

which, in Eq. (10), give

$$\mathrm{P}=150100\text{ lbs}$$

for the pressure on a square inch of bore, which would be sufficient to break a gun made of the Greenwood iron and having the dimensions of the 42-pounder.

(20)—In his report upon gun metals and powder, page 200, Major RODMAN gives, as the mean of five experiments, 51800 pounds to the square inch, as the pressure due to 8 pounds of powder, (grain 0,1 inch in diameter), a solid shot and sabot, fired in a 42-pounder. Hence, making

$$\mathrm{P}=51800\text{ lbs}$$
$$\rho=0^{\mathrm{f}}.29166$$
$$c=0^{\mathrm{f}}.70833$$

and substituting in Eq. (9), give

$$\mathrm{M}.\frac{\delta\rho}{\rho}=35541\text{ lbs}$$

for the tensile strain on a square inch.

(21)—From the experiments of Major RODMAN, of which the results are given at page 158 of his work on the properties of metals and qualities of powder, it appears that cast iron—of the kind tested—when subjected to a tensile strain of 5,000 pounds to the square

inch, was elongated 0,0002171th part of its entire length, and that where the strain exceeded this, the metal took a new set and altered its molecular structure, for beyond 5000 it did not recover the dimensions of which it had been deprived. Moreover, it appears, at page 166 of same work, that the repeated application of a tensile strain equal to 15000 to the square inch, gave a constantly increasing extension, showing a decreasing power of resistance. Thus, the first application gave an extension 0,001278; the 100th, 0,001510; and the 250th, 0,001537.

The moduli, computed from these data, are for the

1st, M = 11737100	Log = 7,0695600
100th, M = 9933770	Log = 6,9971144
250th, M = 9759270	Log = 6,9894174

and computed from the extension 0,0002171, produced by 5000 pounds,

M = 23030800	Log = 7,3623102

Every variation in the modulus requires a corresponding variation in the value of c, Eq. (13). And that a gun may be uninjured by firing, the value of $M \frac{\delta\rho}{\rho}$ should never exceed the maximum tension from which the gun may recover its dimensions; and keep its molecular structure unaltered. This, in the present case, is 5,000 pounds, and which in Eq. (10) will give, in the case of any gun made of this iron and whose radius and thickness are, respectively, ρ and c, the maximum gas pressure to which such gun should be exposed. This prescribes a rule for the treatment of guns in actual service.

(22)—If the exigencies of an occasion require a greater pressure, then the gun, after a certain number of rounds, should be thrown aside, broken up and recast.

(23)—But if it be the question to construct a gun to bear a given gas pressure, and of which the material will bear the tensile strain $M \frac{\delta\rho}{\rho}$ without change of molecular structure, we have only to substitute the given pressure P and the tensile strain in Eq. (13), to find the necessary thickness.

It is quite apparent that all guns have their limits of endurance, and that these limits are somewhat narrow. Those charged with their use have ever at hand the means of pushing them beyond these limits, and these means they are very apt to apply unless restrained by well defined and very positive rules. These rules require a knowledge of the relations which connect the proportions of the constituents of powder, density, size of grain and volume, with the pressure which the gas arising from its combustion exerts upon the bore of the gun. This knowledge we do not possess. In the first part, upon the strains of rifled guns, were given the objections, founded upon the principles of mechanics, to Major RODMAN'S inferences from his plug experiments in this regard.

(24)—In support of those objections, the following table, giving the results of a series of experiments by Mr. PARROTT, with one of his 100-pounders, is appended:

Pressures and ranges; 100-*pound gun.*

[No. 7 is the powder used in navy heavy guns; No. 5 in army 8 and 10-inch columbiads. No. 5 is slower than No. 7.]

No.	Elevation.	Charge.	Projectile.	Pressure—lbs.	Range—yds.
1	5 degrees	10 lbs. Dupont 7	Shot, 99½ lbs	38,000	2,078
2	....do	....do.....do	......do	45,300	2,180
3	....do	10 lbs. Hazard 7	......do	80,000	2,251
4	....do	....do.....do	......do	86,000	2,308
5	....do	10 lbs. Benn 5	......do	27,500	2,221
6	....do	10 lbs. Doremus comp	......do	114,000	2,370
7	10 degrees	10 lbs. Dupont 7	Shell, 101 lbs	66,400	Not taken.
8	....do	....do... .do	......do	69,300	
9	....do	10 lbs. Hazard 7	......do	70,200	
10	....do	....do.....do	......do	87,000	
11	15 degrees	10 lbs. Dupont 7	Shell, 101 lbs	60,350	4,796
12	....do	....do.....do	Shot, 99½ lbs	64,000	5,030
13	....do	....do.....do	Shot, 82 lbs	66,000	5,190
14	....do	10 lbs. Hazard 7	Shell, 101 lbs	99,020	4,735
15	....do	....do.....do	Shot, 99½ lbs	102,980	5,045
16	....do	....do.....do	Shot, 82 lbs	89,000	5,254
17	....do	10 lbs. Benn 5	Shell, 101 lbs	61,750	4,868
18	....do	....do.....do	Shot, 99½ lbs	40,200	4,796
19	....do	....do.....do	Shot, 82 lbs	41,600	5,038
20	....do	10 lbs. Dupont 7	Round shot, 32 lbs	27,250	*3,701
21	....do	10 lbs. Hazard 7	......do....do.	39,300	*3,352
22	....do	10 lbs. Benn 5	......do....do.	20,000	*3,195
23	20 degrees	10 lbs. Dupont 7	Shell, 101 lbs	65,800	5,853
24	....do	....do.....do	Shot, 99½ lbs	48,650	6,125
25	....do	....do.....do	Shot, 82 lbs	81,000	6,338
26	....do	10 lbs. Hazard 7	Shell, 101 lbs	102,900	5,762
27	....do	....do.....do	Shot, 99½ lbs	102,000	5,972
28	....do	....do.....do	Shot, 82 lbs	98,000	6,273
29	....do	10 lbs. Benn 5	Shell, 101 lbs	50,000	5,698
30	....do	....do.....do	Shot, 99½ lbs	91,500	6,240
31	....do	....do.....do	Shot, 82 lbs	39,300	5,991

* Wild in direction.

It is sufficient simply to run the eye over the last two columns and note the almost entire absence of correspondence between the plug indications and the ranges, to be satisfied of the little reliance to be placed upon the former.

(26 —It is of importance to gun practice that the pressures of gases arising from the burning of different kinds of powder be accurately ascertained, and a series of experiments, free from all objections, and having for its object to supply this information, is desirable.

(27)—To find the greatest gas pressure to which a gun of given dimensions should be subjected without impairing its quality of endurance, substitute in Eq. (10) for $M\frac{\delta\rho}{\rho}$ the

greatest tensile strain from which the material may recover its former figure after being relieved. In the case of the Greenwood iron 42-pounder, this is 5000. We find

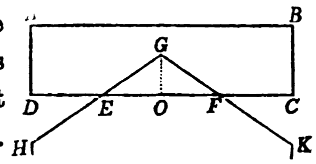
$$P = 21165 \text{ lbs.}$$

(28) Again, let it be required to find the thickness of a 42-pounder to be subjected to a gas pressure double this, and yet the tensile strain not to exceed 5000. Then Eq. (13)

$$c = 1^{\prime\prime}.0625,$$

which is the thickness necessary to resist a pressure equal to twice 21165 without incurring a tensile strain greater than 5000 pounds. It is quite apparent how these numbers will vary with the nature of the gun metal. In the testing of a new gun, means should be provided for measuring the *pitch* of the sound with which it responds to a blow from a light hammer on the face of the muzzle after every discharge. Altered tone will indicate altered structure.

(29)—To determine the gas pressure let A B C D represent the edge of a block of copper; K G H the cutter of the plug apparatus in the position to which it is pressed by a dead weight, without velocity, so that the resistance of the copper may measure the weight. Make this notation, viz:



W = Weight equal to copper resistance.
x = Depth of penetration, G O.
y = Distance E F, or length of cut.
φ = Angle H G K.
A = Copper resistance for unit of penetration.

(30)—Assume as the law which connects the resistance with the penetration,

$$W = A\, x^m, \tag{15}$$

in which m is a constant, as well as A; both to be found by experiment. For any other weight as W_1 and penetration x_1, we have

$$W_1 = A.\, x_1{}^m \tag{16}$$

Taking logs. in both equations, and subtracting first from the second, we find, after solving with respect to m,

$$m = \frac{\text{Log } W_1 - \text{Log } W}{\text{Log } x_1 - \text{Log } x} \tag{17}$$

and from Eq. (15)

$$A = \frac{W}{x^m} \tag{18}$$

From the figure

$$y = 2\, x \tan \tfrac{1}{2}\, \varphi$$

or

$$x = \frac{y}{2 \tan \frac{1}{2}\, \varphi} \tag{19}$$

which substituted for x in Eqs. (17) and (18) gives, after reduction,

$$m = \frac{\text{Log } W_1 - \text{Log } W}{\text{Log } y_1 - \text{Log } y} \tag{20}$$

$$\mathrm{A} = \frac{(2 \tan \frac{1}{2} \varphi)^{m}.\ \mathrm{W}}{y^{m}} \tag{21}$$

By repeated trials with different weights but with the same cutter and copper, a series of values for m and A may be found, and these being treated by the principle of least squares, will give the most probable values for the constants m and A. The copper should not be beaten or rolled, but simply cast and planed to a smooth surface with a very sharp tool.

(31)—To apply these preliminaries to the finding of gas pressures, it is to be observed that when the powder begins to burn, the pressure is nothing, and at the close of the action it is also nothing; that is, the initial and terminal values of the pressure are zero, having a maximum value somewhere between. The simplest law of continuity which connects these varying values with each other is expressed by the equation

$$p = \mathrm{P}.\ \sin \left(\pi.\ \overline{\ } \right) \tag{22}$$

in which p denotes the pressure, in pounds, upon the plug head, P the maximum pressure upon the same, and l the greatest value for x, or the entire penetration.

The quantity of work of this pressure will be

$$\int_{x=l}^{x=0} \mathrm{P}.\ \sin. \left(\pi. \frac{x}{l} \right) d\ x = \frac{2\ l}{\pi}.\ \mathrm{P};$$

The quantity of work of the copper resistance will be

$$\int_{x=l}^{x=0} \mathrm{A}\ x^{m}.\ d\,x = \frac{\mathrm{A}}{m+1}.\ l^{m+1};$$

(32)—But these quantities of work must be equal; whence

$$\frac{2\ l}{\pi}.\ \mathrm{P} = \frac{\mathrm{A}}{m+1}.\ l^{m+1}$$

or

$$\mathrm{P} = \frac{\pi}{2\ (m+1)}.\ \mathrm{A}.\ l^{m} \tag{23}$$

and denoting by a, the maximum value of y, or the entire length of the cut, answering to l, we have, Eq. (19),

$$l = \frac{a}{2 \tan \frac{1}{2} \varphi},$$

which in Eq. (23) gives

$$\mathrm{P} = \frac{\pi}{2\ (m+1)}.\ \mathrm{A}. \left(\frac{a}{2 \tan \frac{1}{2} \varphi} \right)^{m}. \tag{24}$$

A and m are known, Eqs. (20) and (21); a may be measured by the Filar Micrometer with great accuracy; whence P becomes known. The value of P, multiplied by the ratio of the area unity to that of the plug head, gives the pressure on unit of surface, or P in Eq. (7).

(34)—At page 38 of Major Rodman's work is a table giving a series of actual pressures, varying from 1.000 to 14,000 pounds, and the cuts produced, ranging in length from 0,21 to 1,11 of an inch. These, by Eq. (17), give a mean value for $m = 1{,}5957$; say

$$m = 1{,}6.$$

(35)—The angle made by the inclined edges of the cutter does not appear to be given. For the sake of illustration, this angle will be supposed equal to that given in the figure on the plate fronting page 299; so that

$$\tfrac{1}{2}\,\varphi = 81^{\circ}.45'.$$

(36)—Take at random from the table any weight and its corresponding cut; say

$$W = 8000 \text{ lbs., and } a = 0{,}78 \text{ in.}$$

These data in Eq. (21) give

$$A = 792810 \text{ lbs.} \qquad \text{Log } 5.8991690.$$

(37)—Now, suppose this cut of 0,78 in. to be produced by the action of the expanding gas in the gun; Eq. (24) will give

$$P = 5005 \text{ lbs.}$$

(38)—It may be objected that the function in Eq. (22) gives the maximum pressure P at the middle point of the penetration. The objection is of little worth, for the object being to find the maximum pressure to which the gun is subjected, it matters not where it occurs, so that it be found. That function is employed to find the work of p over the distance l; and this work being measured by the area included between the curve of which Eq. (22) is the equation, the extreme ordinates, which are nothing, and the path l, that area will be sensibly the same wherever the maximum ordinate P may be found.

(39)—The several values of m, as deduced from the table and tested by the method of least squares, give the mean error equal to 0,4441; the probable error in any one determination 0,2996; and the probable error in final result 0,0831. But among these values there are three remarkable for discordance with the others. If these be rejected, as having been influenced by something extraneous to the recognized agencies of the experiments, we find the mean error 0,2681; probable error in any one determination 0,1816; and probable error in final result 0,0572—a sufficient proof that the method proposed for evolving the law of copper resistance will lead to the desired result.

(40)—As before remarked, the copper should be neither hammered nor rolled, as these processes break up the homogeneousness of the material and develop unequal resistance at different points and in different directions.

The form of Major RODMAN'S cutter seems to be objectionable. It would be much better to use a conical point, and rely upon a Filar Micrometer, with great magnifying power in the eye-glass, to measure the surface diameter of the penetration.

WEST POINT, 1865.